

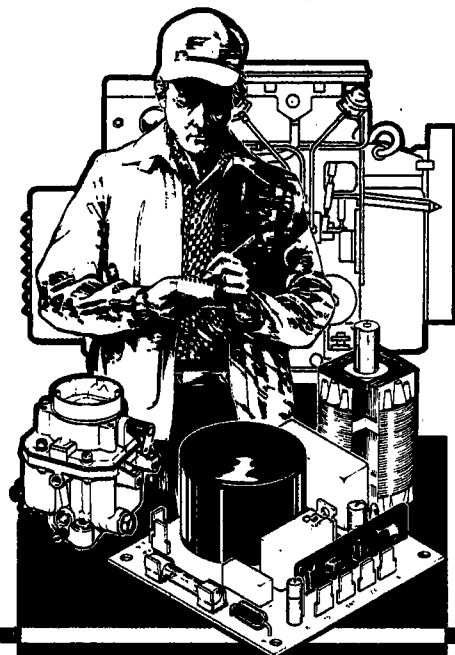
The following catalog
has gaps in its page
numbers, or doesn't
have any numbers.
We have chosen to
leave the page
numbering in the
order that Acrobat
assigns it.

Onan

Parts Manual

DL6TB

GenSet



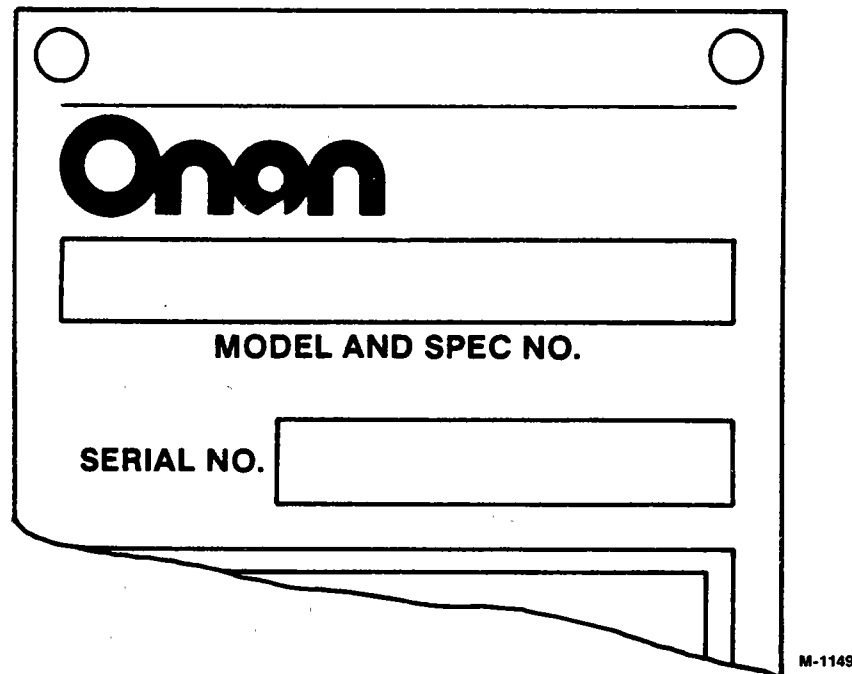
Onan Service Parts

934-0228
2-87 (SPEC A and B)
Replaces
6-84 (Spec A-B)
Printed in U.S.A

General Information

For parts or service, contact the dealer from whom you purchased this equipment or refer to your Nearest Authorized Onan Parts and Service Center.

To avoid errors or delay in filling your parts order, always give the MODEL, SPEC NO. and SERIAL NO. from the Onan nameplate.

A rectangular nameplate template with rounded corners and two circular mounting holes at the top. The Onan logo is prominently displayed in the upper left. Below the logo is a large rectangular box for the model and specification number. Further down is a smaller rectangular box for the serial number, preceded by the text 'SERIAL NO.'. The bottom right corner of the template is folded over, revealing a second layer. The identifier 'M-1149' is printed at the bottom right of the template.

Onan

MODEL AND SPEC NO.

SERIAL NO.

M-1149

For handy reference, insert "YOUR" nameplate information in the spaces above.

Index

Actuator, Electronic Governor 9
 Adapter, Oil Filter 16
 Alternator 27
 Alternator - Components 28

 Belt, Alternator 27
 Block, Cylinder 4
 Box, Output 44
 Breaker, Circuit - AC 44
 Breaker, Circuit - Control Mounted 50
 Breaker, Circuit -
 Electronic Governor 9

 Cable, Battery 29
 Camshaft 4
 Cap, Oil Fill 17
 Cap, Pressure 36
 Chassis 40
 Cleaner, Air 18
 Connection, Coolant Heater 23
 Connector, Coolant Outlet 23
 Control, Electronic Governor 9
 Control, Generator Set 46
 Cooler, Oil 4
 Cover, Rocker 17
 Crankshaft 4

 Dampener, Vibration - Control Box 44
 Drain, Oil 15

 Elbow, Exhaust 22
 Element, Air Cleaner 18

 Fan, Cooling 36
 Filter, Fuel 13
 Filter, Oil 16
 Flywheel 26

 Gauges - DC 50
 Gear, Injection Pump 8
 Gearcase 8
 Generator 42
 Governor, Electronic 9
 Grille, Radiator 36
 Guard, Belt - Remote Radiator 35
 Guard, Belt - Standard 36
 Guard, Fan 36

 Harness, Wiring - Engine to Control 44
 Harness, Wiring - Generator to Control 44
 Harness, Wiring -
 Generator Control Panel 50
 Harness, Wiring - Remote Control 46
 Harness, Wiring -
 Voltage Regulator - VRA21 48
 Head, Cylinder 6
 Heater, Engine Coolant 33
 Hose, Radiator 36
 Housing, Flywheel 25
 Housing, Generator Set 41
 Housing, Radiator 36

 Indicator, Oil Level 14
 Injector, Fuel 10

 Kit, Gasket - Lower End 4
 Kit, Gasket - Valve Grind 6
 Kit, Repair - Fuel Transfer Pump 13

 Light, Indicator 50
 Line, Fuel - Fuel Return 10
 Line, Fuel - Fuel Supply 13
 Line, Injection 10

 Manifold, Exhaust 20
 Manifold, Intake 19
 Meters - AC 50
 Monitor, Engine 46
 Mount, Engine - Front 31
 Mount, Vibration - Engine 40
 Muffler 34

 Paint - Touch Up 52
 Pan, Oil 14
 Panel, Control - Generator Set 50
 Pickup, Oil 14
 Piston 4
 Plug, Glow 31
 Pulley, Alternator 27
 Pulley, Coolant Pump 24
 Pulley, Crankshaft 24
 Pump, Coolant 24
 Pump, Fuel - Electric 38
 Pump, Fuel Transfer 13
 Pump, Injection 10
 Pump, Injection - Components 12
 Pump, Oil 8

 Radiator 36
 Regulator Assembly, Voltage 46
 Regulator Assembly, Voltage -
 VRA21 Components 48
 Regulator Assembly, Voltage -
 VRAS-2 Components 49
 Relay - Day Tank 38
 Relay, Solenoid - Heater 40
 Relay, Solenoid - Start 40
 Relays - Control Mounted 46

 Sealant, Thread 52
 Sender, Oil Pressure 32
 Sender, Oil Temperature 16
 Sender, Water Temperature 24
 Shroud, Fan 36
 Spacer, Fan 36
 Starter 29
 Starter - Components 30
 Strap, Ground - Control 46
 Strap, Ground - Engine 40
 Switch, Low Coolant Level 37
 Switch, Low Engine Temperature 6
 Switch, Oil Pressure 32
 Switch, Push 50
 Switch, Rotary 50
 Switch, Thermostat 24

 Tank, Day 38
 Thermostat 24
 Transformer, Current 44
 Tube, Oil Fill - Gearcase 17
 Turbocharger 20

Introduction

This parts manual applies to the standard generator sets as listed below. Parts are arranged in groups of related items and each illustrated part is identified by a reference number corresponding to the same reference number in the parts list. Unless otherwise mentioned in the description, parts are interchangeable between models. All references in the parts description that pertain to specification letter differences for replacement parts are for the model listed on the identification label affixed to the generator set control. Throughout this manual left (non-accessory) and right (accessory) sides are determined by facing the rear or generator end of the set.

Set Data Table

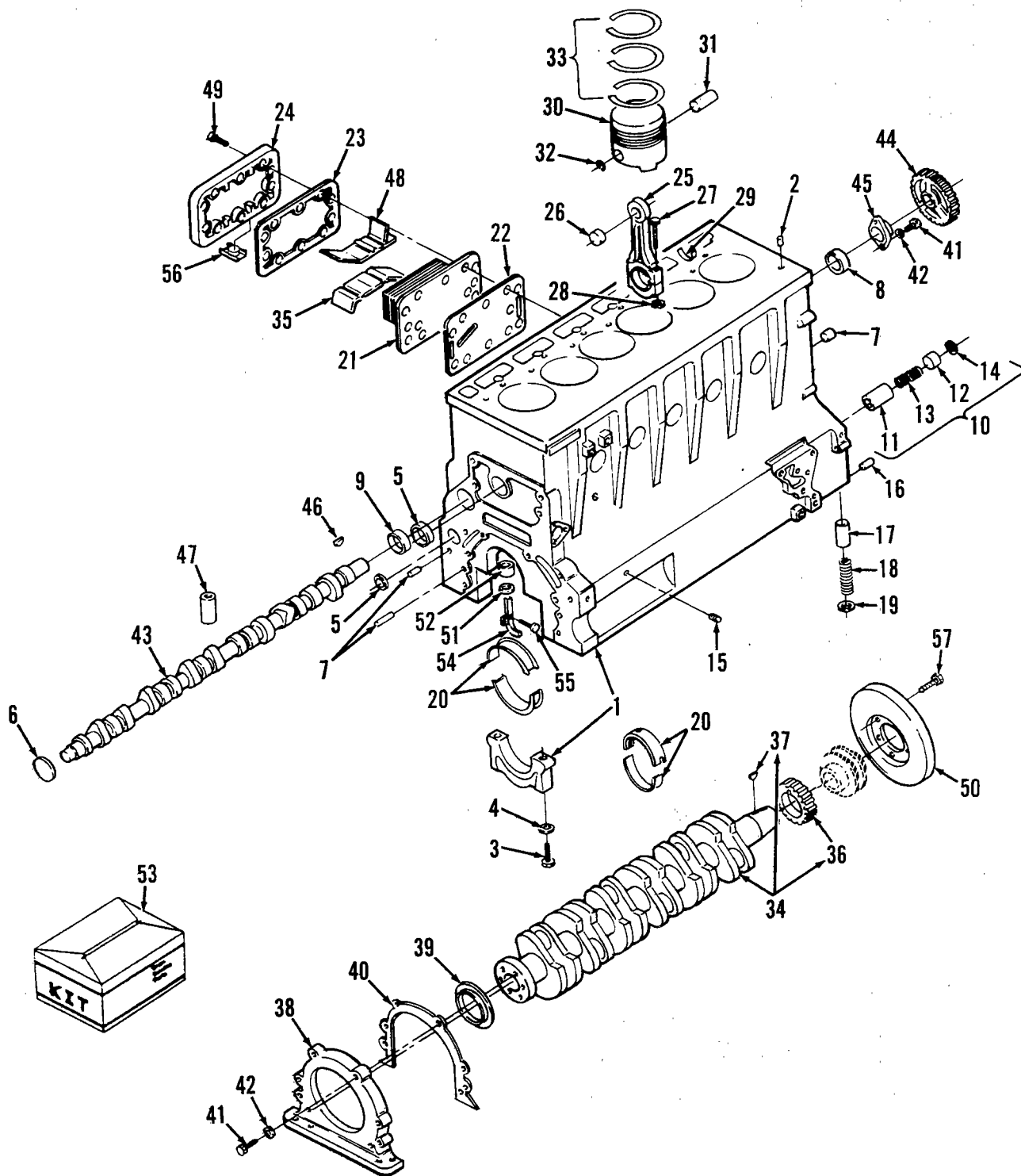
MODEL IDENTIFICATION	RATING	MODEL IDENTIFICATION	RATING
63.0 DL6TB-*/#@	63,000 WATTS	70.0 DL6TB-*/#@	70,000 WATTS

Electrical Data Table

*VOLTAGE CODES	VOLTS	HERTZ	WIRE	PHASE	NOTES
9XR	347/600	60	6	3	+
15R	120/208	60	12	3	
	120/240				
	127/220				
	139/240				
	240/416				
	254/440				
515R	277/480	50	12	3	+
	110/190				
	110/220				
	115/200				
	115/230				
	120/208				
	127/220				
	220/380				
	230/400				
	240/416				
	254/440				

- * - Voltage codes follow model letter designations.
- # - Specification number: Number 1 is standard, all others indicate variations.
- @ - Specification letter: Letter advances (A to B, B to C, etc.) with major manufacturing changes.
- + - These generators are reconnectable, refer to Operator's Manual for wiring data.

Cylinder Block



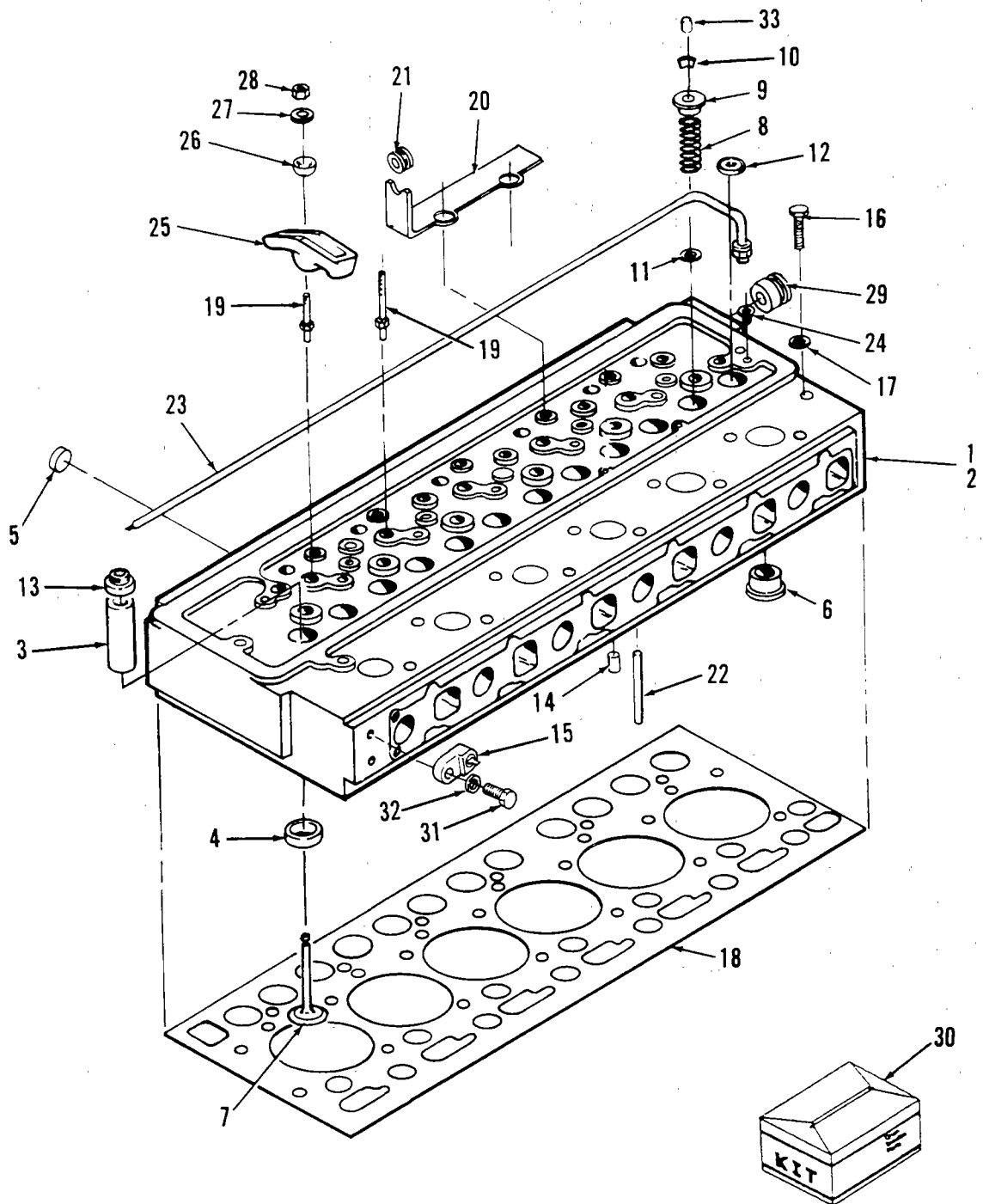
Cylinder Block

REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	110-3297	1	Block, Assembly, Cylinder (Includes Parts Marked*)	30			Piston and Pin Kit (Includes Retaining Rings)
2	110-2978	2	*Pin, Cylinder Head Alignment	112-0221	6		Standard
3	720-1801	14	*Screw, Cap - Hex Head - Special	112-0222	6		0.25 MM Oversize
4	740-1801	14	*Washer, Flat - Special	112-0223	6		0.50 MM Oversize
5			Plug, Cup	112-0224	6		0.75 MM Oversize
	517-0141	6	* 50.8 MM Stainless Steel	112-0225	6		1.0 MM Oversize
	517-0144	2	* 12.7 MM Steel	31 112-0165	6		Pin, Piston
	517-0146	1	* 31.75 MM Stainless Steel	32 518-0409	12		Ring, Retaining - Piston Pin
	517-0250	1	54.37 MM Stainless Steel (Oversize)	33			Ring Kit, Piston
6	517-0140	1	*Plug, Welch (57.15 MM) Steel	113-0261	6		Standard
7			Pin, Alignment	113-0262	6		0.25 MM Oversize
	775-0074	2	* 8 MM x 20 MM	113-0263	6		0.50 MM Oversize
	775-0089	2	* 10 MM x 20 MM	113-0264	6		0.75 MM Oversize
	775-0078	2	* 8 MM x 40 MM	113-0265	6		1.0 MM Oversize
8	101-0511	1	*Bearing, Camshaft - Front	34 104-1576	1		Crankshaft and Gear (Includes Key)
9	101-0471	6	*Bearing, Camshaft - Intermediate and Rear	35 102-1153	1		Baffle, Oil Cooler - Bottom
10	123-1613	1	*Valve Assembly, Pressure Relief (Includes Parts Marked +)	36 104-1138	1		Gear, Crankshaft
11	123-1515	1	+Body, Relief Valve	37 515-0245	1		Key - Crankshaft Gear
12	123-1514	1	+Piston, Relief Valve	38 101-0713	1		Plate, Rear Seal (Includes Seal)
13	123-1508	1	+Spring, Relief Valve	39 509-0203	1		Seal, Oil - Rear (Includes Wear Sleeve)
14	518-0410	1	+Ring, Retaining	40 101-0600	1		Gasket, Rear Seal Plate
15			Plug, Pipe	41 718-1037	8		Screw, Cap - Hex Head (M8 x 25 MM)
	502-0153	7	* 6.35 MM - Brass	42 740-1006	8		Washer, Flat (M8)
	505-0274	6	* 3.17 MM - Steel	43 105-0512	1		Camshaft
16	516-2102	1	*Pin, Regulator Valve Spring	44 105-0515	1		Gear, Camshaft
17	123-1514	1	*Piston, Regulator Valve	45 105-0534	1		Retainer, Camshaft
18	123-1511	1	*Spring, Regulator Valve	46 515-0245	1		Key - Camshaft Gear
19	740-1004	1	*Washer, Flat (M6)	47 115-0275	12		Tappet
20			Bearing Kit, Main (Includes Upper and Lower Bearing Half)	48 102-1155	1		Baffle, Oil Cooler - Top
				49 725-1061	10		Screw, Socket Head (M8 x 80 MM)
	101-0689	1	Front (Standard)	50			Damper, Crankshaft
	101-0681	1	Center (Standard)	104-1485	1		3000 RPM
	101-0685	4	Intermediate (Except Center) (Standard)	104-1547	1		3600 RPM
	101-0677	1	Rear (Standard)	51 509-0178	6		*Seal, O-Ring
21	102-1120	1	Cooler, Oil	52 110-3235	6		*Sleeve, Cooling Piston
22	102-0973	1	Gasket, Oil Cooler	53 168-0173	1		Kit, Gasket - Lower End
23	102-0975	1	Gasket, Oil Cooler Cover	54 110-3206	6		*Nozzle, Piston Cooling
24	102-1254	1	Cover, Oil Cooler	55 815-0564	6		*Screw, Machine - Buttress Head (M6 x 20 MM)
25	114-0313	6	Rod, Connecting (Includes Finished Bearing, Bolts and Nuts)	56 504-0028	1		Valve, Coolant Drain
26	114-0316	6	Bushing, Connecting Rod (Semi Finished)	57 720-1807	6		Screw, Cap - Hex Head (Special)
27	114-0315	12	Bolt, Connecting Rod				
28	114-0318	12	Nut, Connecting Rod				
29	114-0320	12	Bearing, Connecting Rod - Standard (Half)				

* - Parts Included in 110-3297 Cylinder Block Assembly

+ - Parts Included in 123-1613 Pressure Relief Valve Assembly

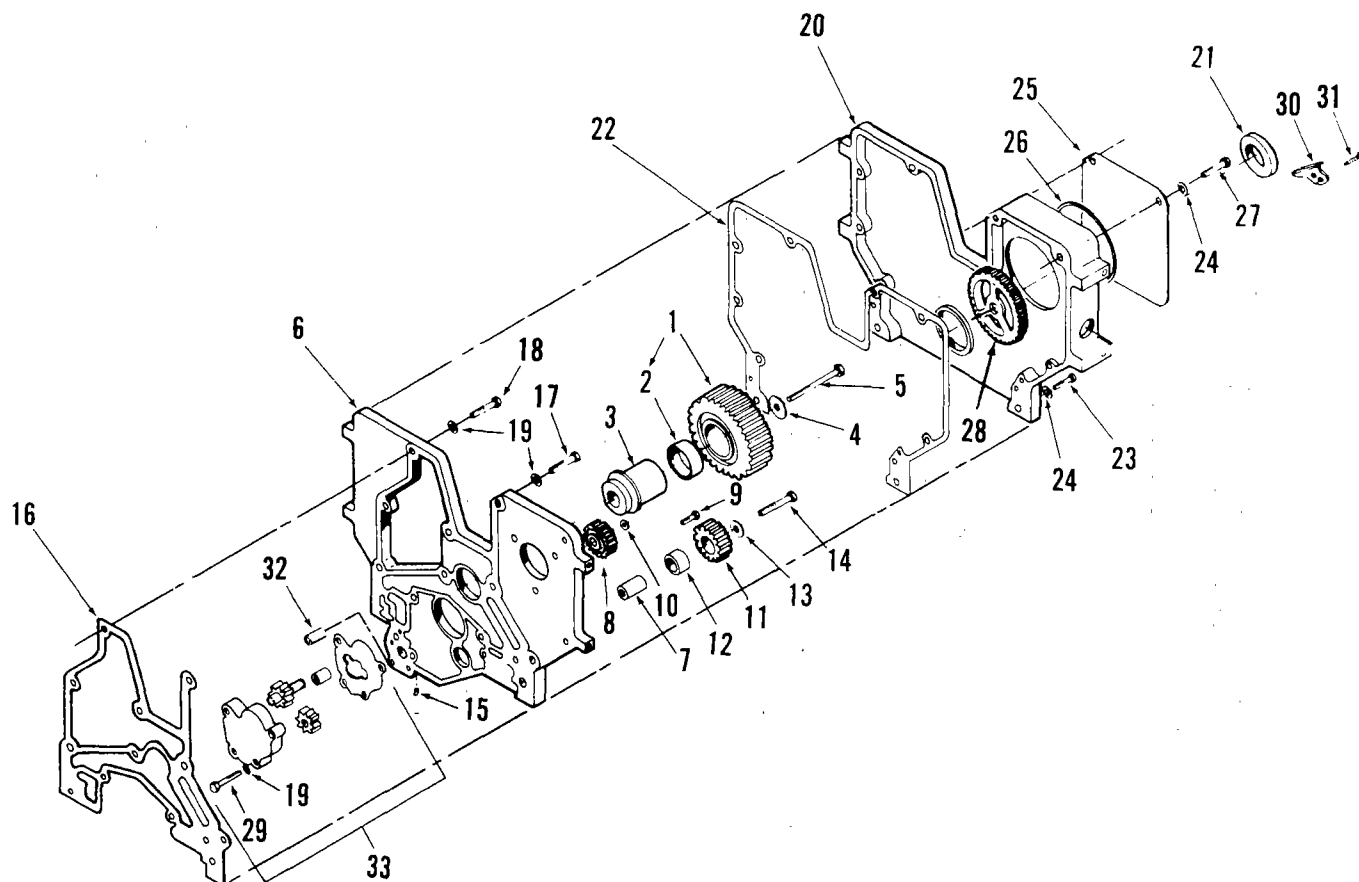
Cylinder Head



Cylinder Head

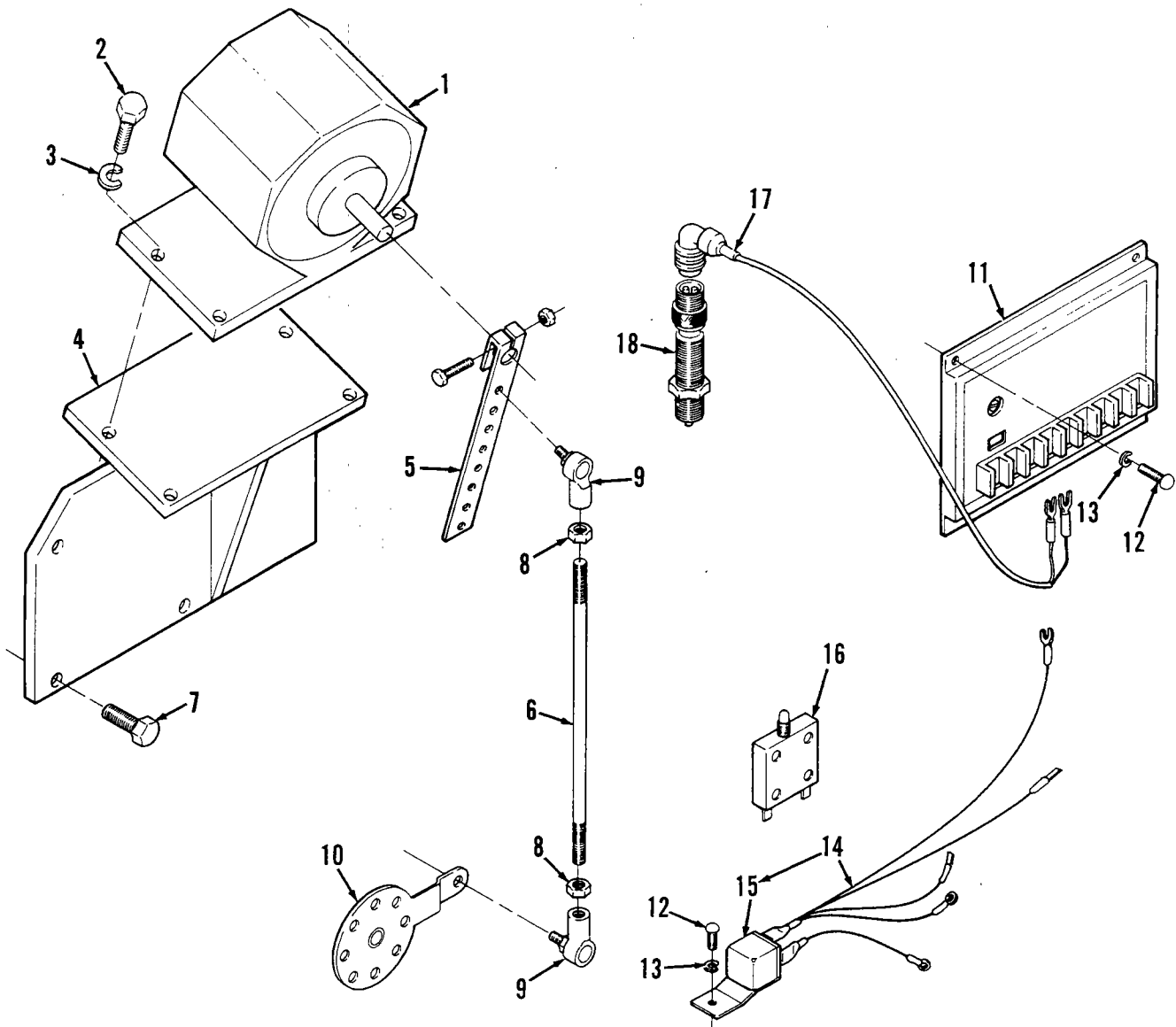
REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	110-3298	1	Head Assembly, Cylinder (Includes Valve Guides, Valve Seats, Cup Plugs, Rotators, Valves, Springs, Retainers, Collets, Wear Plates, Sleeves and Seals)	12	110-3326	6	Rotator, Valve (Intake) Begin Later Portion of Spec A (Note: Intake valve rotators are included with all replacement cylinder heads.)
2	110-3455	1	Head, Cylinder (Includes Seats, Rotators and Guides)	13	110-3228	12	Seal Assembly, Valve Stem
3			Guide, Valve (Semi Finished)	14	110-2979	6	Sleeve, Sealing
	110-3495	6	Intake (Standard)	15	309-0269	1	Switch, Low Engine Temperature (S5) Controls With 9 Indicator Lights
	110-3496	6	Exhaust (Standard)	16	720-1802	26	Screw, Cap - Hex Head (M12 x 130 MM)
4			Seat, Valve Intake	17	740-1801	20	Washer, Flat (M12)
	110-3226-01	6	Standard	18	110-3225	1	Gasket, Cylinder Head
	110-3226-02	6	.25 MM Oversize	19			Stud, Rocker Arm
	110-3226-03	6	.50 MM Oversize		115-0204	6	Short
			Exhaust		115-0270	6	Long
	110-2781-01	6	Standard	20	115-0313	3	Guide, Pushrod
	110-2781-02	6	.25 MM Oversize	21	508-0228	3	Grommet
	110-2781-03	6	.50 MM Oversize	22	115-0253	12	Pushrod
5			Plug, Cup	23	120-0920	1	Tube, Rocker Arm Oil
	517-0142	11	38.1 MM	24	502-0003	1	Connector, Inverted Male
	517-0146	4	31.75 MM	25	115-0316	12	Arm, Rocker
	517-0162	6	19.05 MM	26	115-0202	12	Ball, Rocker Arm
6	110-3039	6	Plug, Hot (Swirl)	27	526-2119	12	Washer, Flat
7			Valve	28	115-0315	12	Locknut, Rocker Arm
	110-3218	6	Intake	29			Adapter, Water Pump
	110-3260	6	Exhaust		110-3045	1	Standard
8	110-3300	12	Spring, Valve		110-3490	1	0.5 MM Oversize
9	110-3015	12	Retainer, Valve Spring	30	168-0174	1	Kit, Gasket - Valve Grind
10	110-2752	24	Collet, Valve Lock	31	800-2085	1	Screw, Cap - Hex Head (M10 x 20 MM)
11			Plate, Valve Spring Wear	32	740-1008	1	Washer, Flat (M10)
	110-2991	12	Early Portion of Spec A	33	110-3245	12	Cap, Valve Stem (Not used on some early models)
	110-2991	6	Begin Later Portion of Spec A (Exhaust)				

Gearcase



REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	105-0513	1	Gear, Idler (Includes Finished Bearing)	19	740-1006	11	Washer, Flat (M8)
2	105-0519	1	Bearing, Idler Gear (Semi Finished)	20	103-0746	1	Gearcase (Includes Oil Seal and Oil Fill Tube)
3	105-0508	1	Shaft, Idler Gear	21	509-0191	1	Seal, Oil (Includes Wear Sleeve)
4	526-2127	1	Washer, Flat (M10)	22	103-0731	1	Gasket, Gearcase
5	718-1064	1	Screw, Cap - Hex Head (M10 x 75 MM)	23	718-1046	2	Screw, Cap - Hex Head M8 x 70 MM
6	103-0716	1	Backplate, Gearcase		718-1043	5	M8 x 55 MM
7	120-0983	1	Shaft, Oil Pump Idler Gear	24	740-1006	4	Washer, Flat M8
8	120-0885	1	Gear, Oil Pump Drive		740-1010	4	M12
9	718-1035	1	Screw, Cap - Hex Head (M8 x 16 MM)	25	103-0735	1	Cover, Injection Pump Gear
10	526-2106	1	Washer, Flat	26	509-0263	1	Seal, O-Ring
11	120-1063	1	Gear, Oil Pump Idler (Includes Finished Bearing)	27			Screw, Cap - Hex Head M8 x 80 MM
12	120-1041	1	Bearing, Oil Pump Idler Gear (Semi Finished)		718-1048	1	M8 x 60 MM
13	526-2107	1	Washer, Flat		718-1044	1	M8 x 20 MM
14	718-1035	1	Screw, Cap - Hex Head (M8 x 16 MM)	28	147-0427	1	Gear, Injection Pump
15	725-1802	1	Screw, Hex Socket Set (M16 x 16 MM)	29	718-1044	2	Screw, Cap - Hex Head (M8 x 60 MM)
16	103-0733	1	Gasket, Gearcase Backplate	30	103-0750	1	Plate, Timing
17	718-1037	1	Screw, Cap - Hex Head M8 x 25 MM	31	815-0578	2	Screw, Cap - Hex Head (M6 x 14 MM)
	718-1039	2	M8 x 35 MM	32	120-0979	1	Bearing, Oil Pump Drive Shaft
18	725-1801	2	Screw, Low Socket Head Cap (M8 x 16 MM)	33	120-1091	1	Pump Kit, Oil (Includes Drive Shaft Bearing)

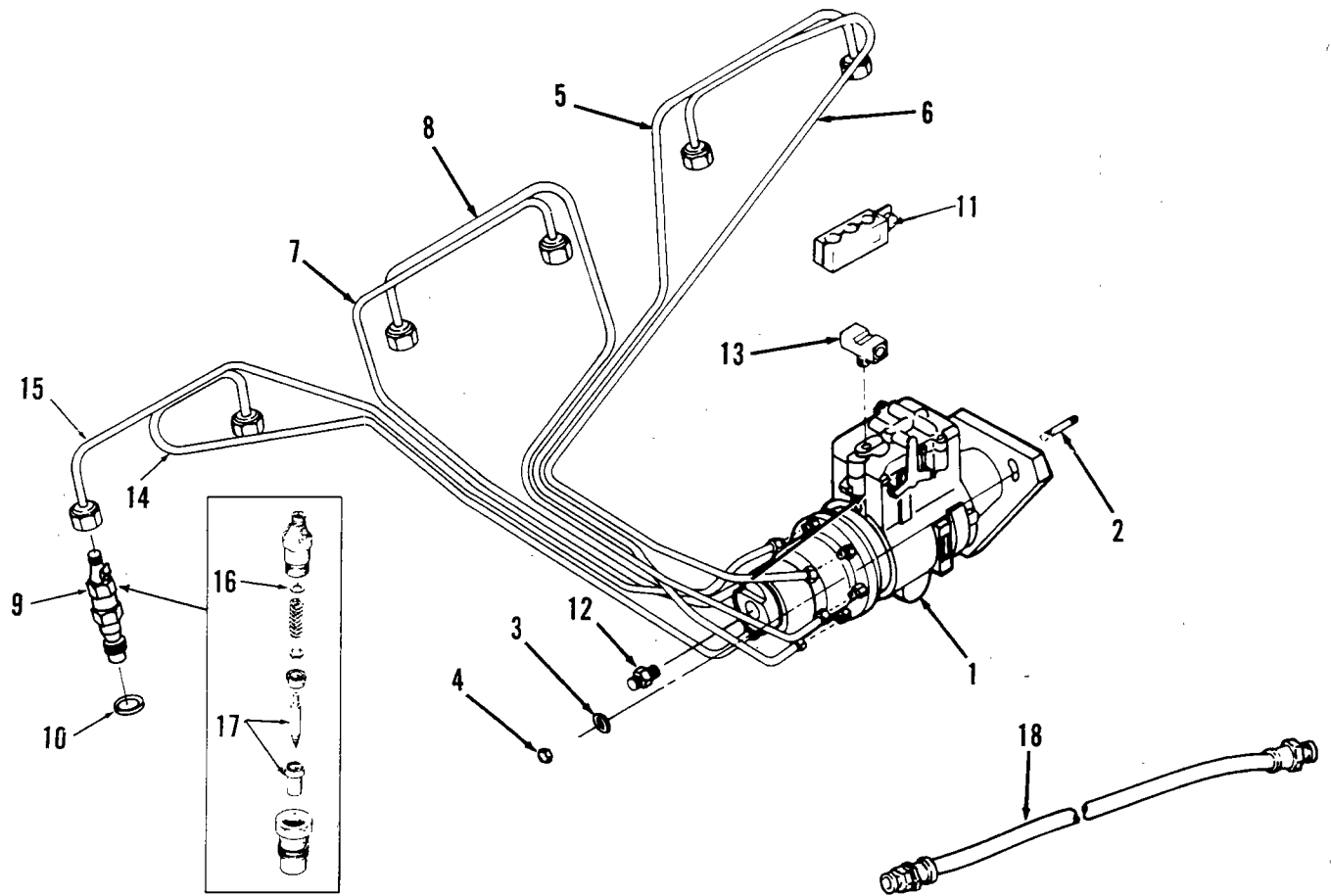
Electronic Governor



REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	151-0566	1	Actuator, Governor
2	800-0006	4	Screw, Cap - Hex Head (1/4-20 x 7/8")
3	850-0040	4	Washer, Lock - Spring (1/4")
4	150-1996	1	Bracket, Mounting
5	151-0567	1	Arm, Governor (Includes Screw and Nut)
6	150-1923	1	Rod, Governor Control
7	800-2071	4	Screw, Cap - Hex Head (M8 x 90 MM)
8	870-0131	2	Nut, Hex - with ET (#10-32)
9	150-0939	2	Joint, Ball
10	151-0437	1	Kit, Throttle Modification (Fuel Injection Pump)

REF NO.	PART NO.	QTY USED	PART DESCRIPTION
11	151-0605	1	Control, Governor (A12)
12	813-0103	5	Screw, Machine - Round Head (#10-32 x 3/4")
13	850-0030	5	Washer, Lock - Spring (#10)
14	338-1705	1	Harness, Wiring - Includes Relay
15	307-1886	1	Relay
16	320-0540	1	Breaker, Circuit - 15 Amp (CB13) Includes Mounting Nuts
17	338-1765-01	1	Cable, Magnetic Pickup (60")
18	151-0603-02	1	Sensor, Magnetic Speed

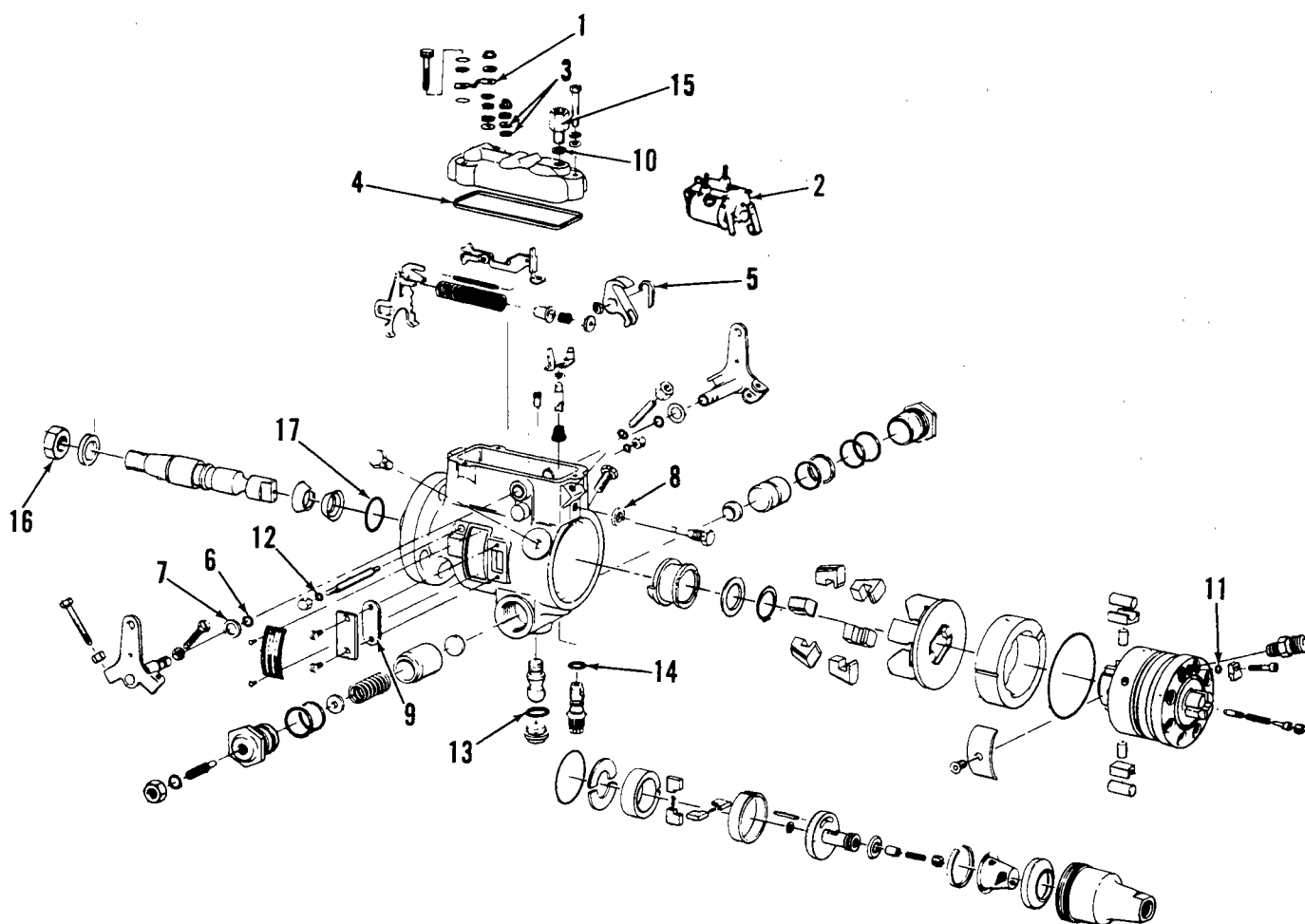
Fuel Injection



Fuel Injection

REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	147-0465-12	1	Pump, Fuel Injection (See Separate Page for Components)	16			Washer, Injection Nozzle Shim
2	520-2403	3	Stud, Injection Pump (M8)	147-0617	As Req.	0.80 MM	
3	526-2106	3	Washer, Flat (M8)	147-0618	As Req.	0.84 MM	
4	750-1006	3	Nut, Hex (M8)	147-0619	As Req.	0.88 MM	
5	147-0666	1	Line, Fuel Injection (No. 1)	147-0620	As Req.	0.92 MM	
6	147-0667	1	Line, Fuel Injection (No. 2)	147-0621	As Req.	0.96 MM	
7	147-0668	1	Line, Fuel Injection (No. 3)	147-0622	As Req.	1.00 MM	
8	147-0669	1	Line, Fuel Injection (No. 4)	147-0623	As Req.	1.04 MM	
9	147-0701	6	Injector, Fuel (Includes Seal)	147-0624	As Req.	1.08 MM	
10	147-0436	6	Seal, Injector	147-0625	As Req.	1.12 MM	
11			Clamp, Fuel Line	147-0626	As Req.	1.16 MM	
	147-0672	3	Clamps Two Lines	147-0627	As Req.	1.20 MM	
	147-0673	2	Clamps Three Lines	147-0628	As Req.	1.24 MM	
	147-0674	1	Clamps Six Lines	147-0629	As Req.	1.28 MM	
12	502-0733	1	Connector	147-0630	As Req.	1.32 MM	
13	502-0057	1	Tee, Pipe - Special	147-0631	As Req.	1.36 MM	
14	147-0670	1	Line, Fuel Injection (No. 5)	147-0632	As Req.	1.40 MM	
15	147-0671	1	Line, Fuel Injection (No. 6)	147-0633	As Req.	1.44 MM	
				147-0634	As Req.	1.48 MM	
				147-0635	As Req.	1.52 MM	
				147-0636	As Req.	1.56 MM	
				147-0637	As Req.	1.60 MM	
				147-0638	As Req.	1.64 MM	
				147-0639	As Req.	1.68 MM	
				147-0640	As Req.	1.72 MM	
				147-0641	As Req.	1.76 MM	
				147-0642	As Req.	1.80 MM	
				147-0643	As Req.	1.84 MM	
				147-0644	As Req.	1.88 MM	
				147-0645	As Req.	1.92 MM	
				147-0646	As Req.	1.96 MM	
				17	147-0647	6	Tip, Nozzle
				18	501-0094	1	Line, Flexible Fuel - 60" (Fuel Return)

Fuel Injection Pump Components

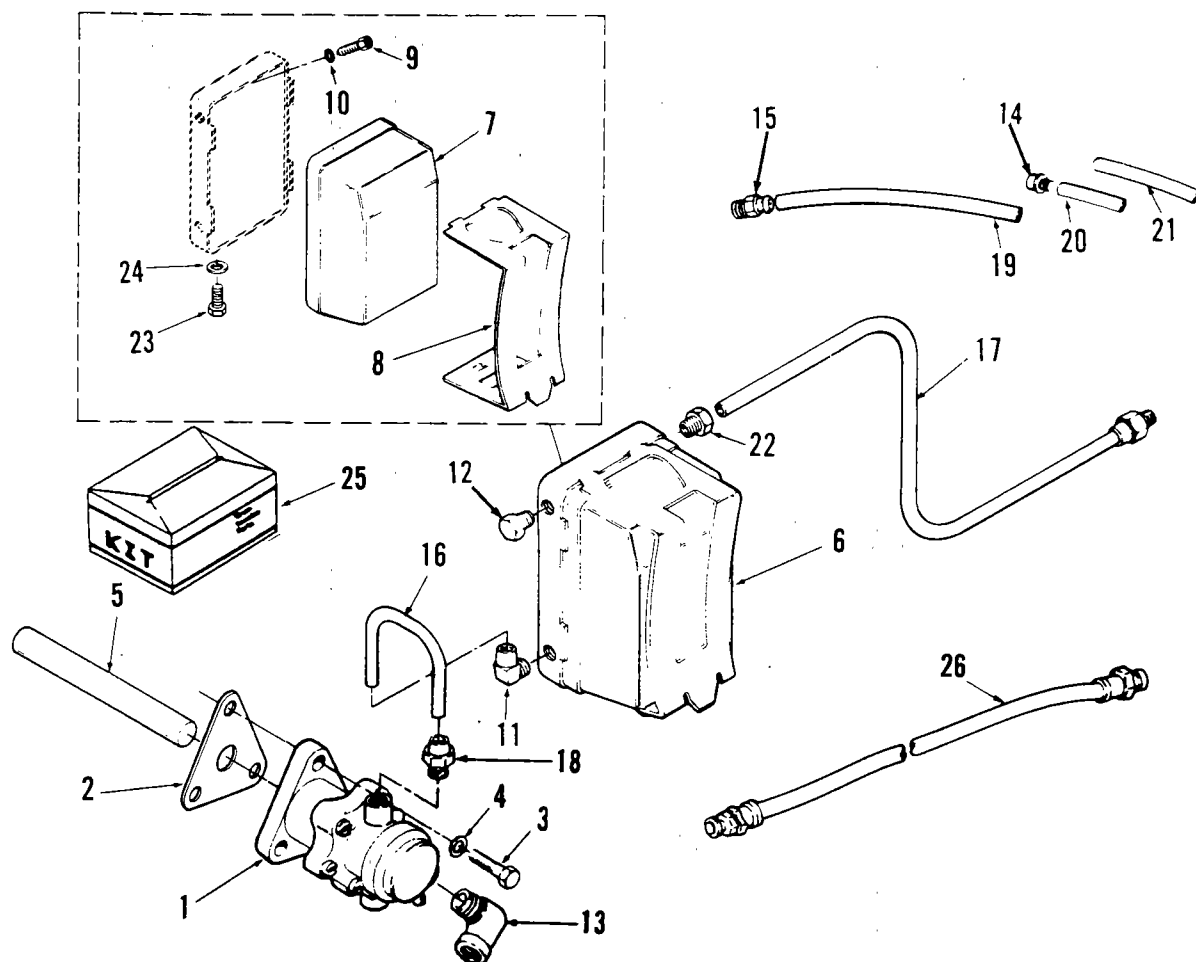


REF NO.	PART NO.	QTY USED	PART DESCRIPTION
	147-0465-12	1	Pump, Fuel Injection (Complete)
1	147-0592	1	Strap, Terminal Grounding
2	147-0593	1	Solenoid and Frame Kit
3	147-0591	2	Washer, Terminal Insulating
4	147-0590	1	Gasket, Governor Cover
5	147-0589	1	Clip, Shaft Retaining (Not required on some pumps)
6	147-0588	2	Seal, Throttle Shaft
7	147-0587	2	Washer, Throttle Shaft Seal
8	147-0586	1	Washer, Guide Stud
9	147-0585	1	Gasket, Timing Line Cover

REF NO.	PART NO.	QTY USED	PART DESCRIPTION
10	147-0584	1	Seal, Return Line Connector
11	147-0583	1	Seal, Locking Plate
12	147-0582	2	Seal, Pivot Shaft
13	147-0581	1	Seal, Advance Screw Hole Plug
14	147-0580	1	Seal, Head Locating Screw
15	147-0579	1	Connector, Return Line
16	147-0578	1	Nut, Drive Shaft
17	509-0265	1	Seal, Pilot Tube

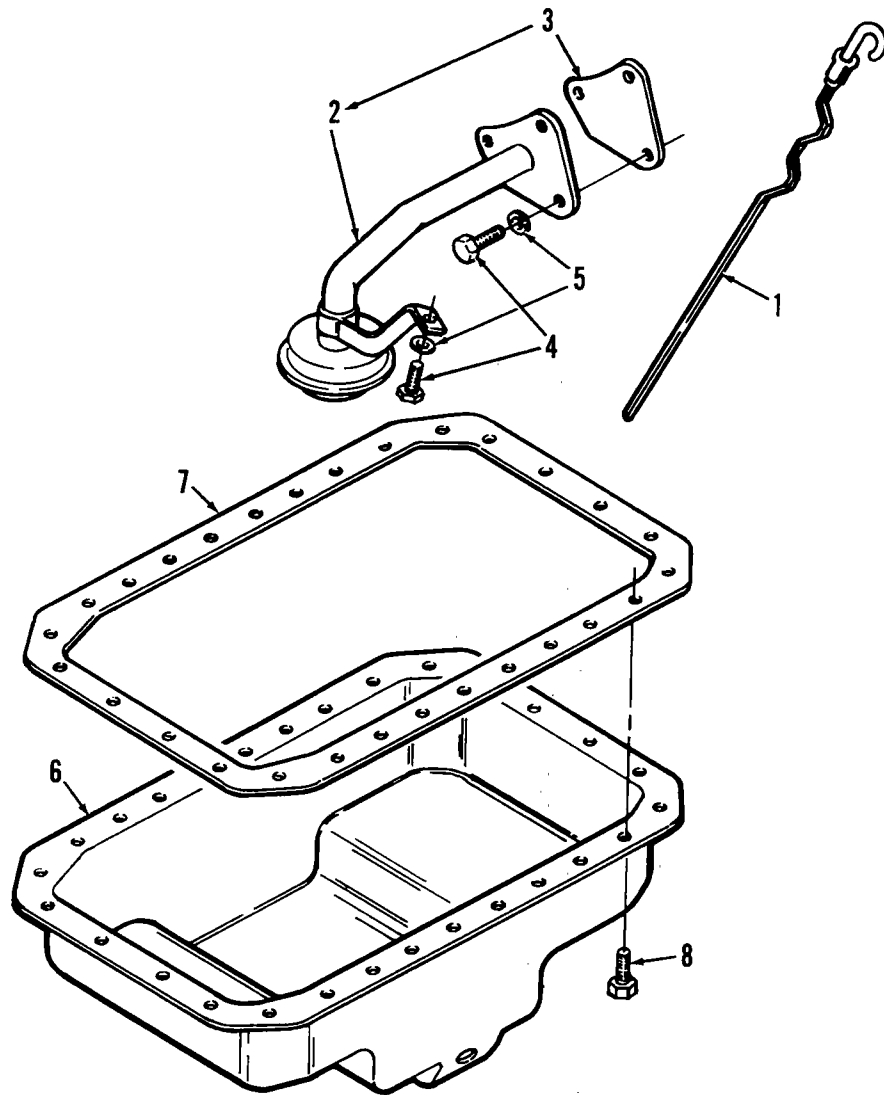
Note: For component parts not listed contact manufacturer shown on nameplate.

Fuel System



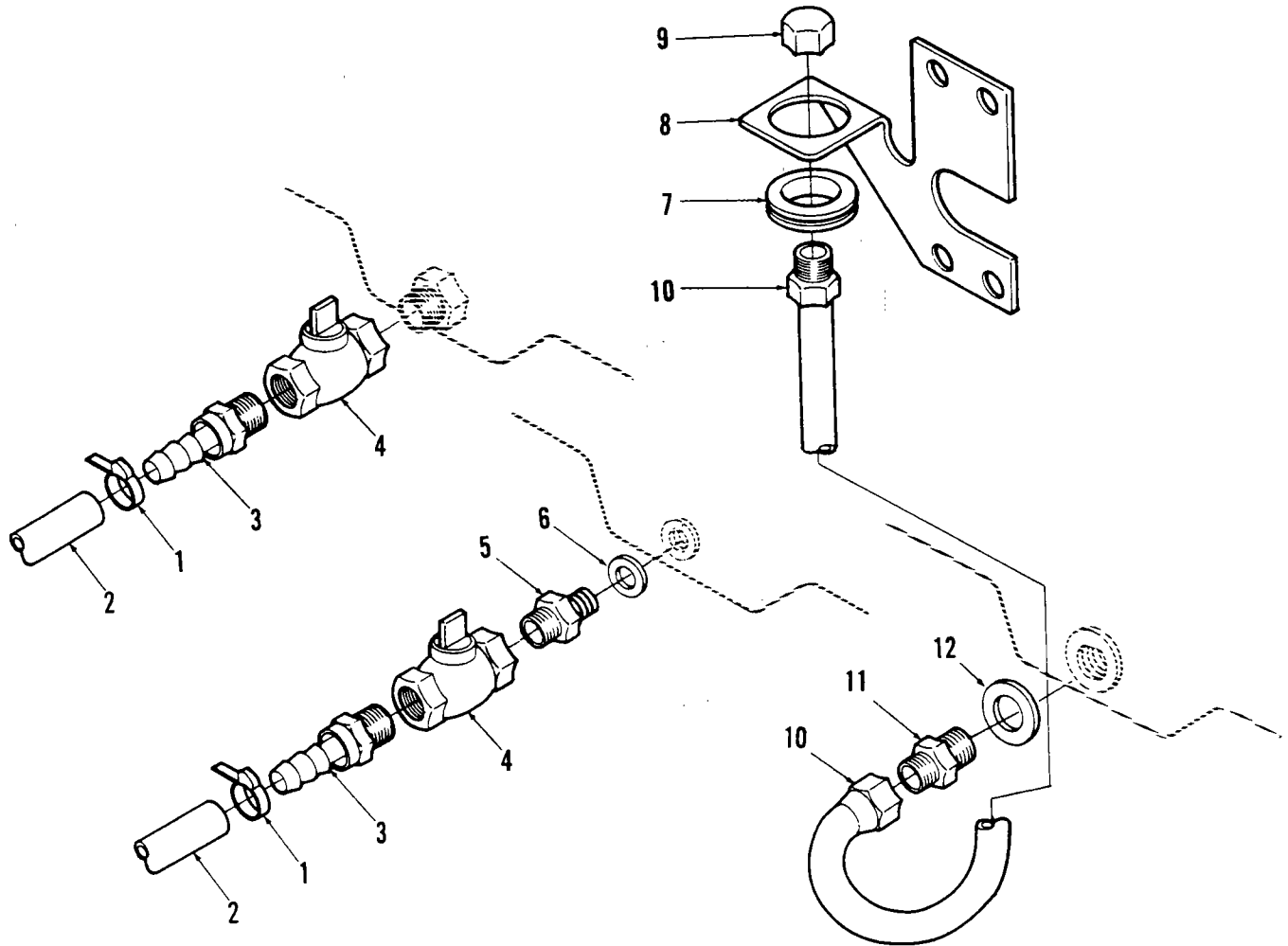
REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1			Kit, Fuel Transfer Pump (Includes Mounting Gasket)	16			Line, Fuel
	149-2067	1	Used During Early Portion of Spec A (Pump Inlet and Outlet 60° Apart)		149-1797	1	Used During Early Portion of Spec A (Used With 149-2067 Fuel Transfer Pump)
	149-2068	1	Use Began During Later Portion of Spec A (Pump Inlet and Outlet 120° Apart)		149-2002	1	Use Began During Later Portion of Spec A (Used With 149-2068 Fuel Transfer Pump)
2	149-1728	1	Gasket, Fuel Transfer Pump	17	149-1796	1	Line, Fuel
3	718-1021	3	Screw, Cap - Hex Head (M6 x 20 MM)	18			Fitting, Transfer Pump Outlet
4	740-1004	3	Washer, Flat (M6)		502-0774	1	Elbow, Flareless Tube (Used During Early Portion of Spec A)
5	149-1732	1	Pushrod, Fuel Transfer Pump		502-0773	1	Connector, Flareless Tube (Use Began During Later Portion of Spec A)
6	149-1755	1	Filter Assembly (Includes Filter, Base, Clamp, Drain Plug, Drain Seal and Plugs)	19	503-1055	1	Line, Fuel Return (Flexible) 380 MM Long
7	149-1754	1	Filter, Fuel	20	503-1054	1	Line, Fuel Return (Flexible) 25 MM Long
8	149-1801	1	Clamp, Fuel Filter	21	503-1053	5	Line, Fuel Return (Flexible) 180 MM Long
9	725-1074	2	Screw, Cap - Socket Head (M10 x 20 MM)	22	502-0773	1	Connector, Flareless Tube Fitting
10	740-1008	2	Washer, Flat (M10)	23	149-1835	1	Plug, Filter Drain
11	502-0774	1	Elbow, Flareless Tube Fitting	24	149-1836	1	Gasket, Filter Drain Plug
12	502-0153	2	Plug, Pipe (1/4")	25	149-2069	1	Repair Package - Fuel Pump
13	502-0054	1	Elbow, Pipe (Use Began During Later Portion of Spec A)	26	501-0441	1	Line, Flexible Fuel - 40" (Fuel Supply)
14	502-0736	1	Plug				
15	502-0738	1	Connector, Male				

Oil Pan



REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	123-1582	1	Indicator, Oil Level	5	740-1006	4	Washer, Flat (M8)
2	120-1124	1	Pickup Kit, Oil (Includes Gasket)	6	102-1191	1	Pan, Oil (Includes Plug and Plug Gasket)
3	120-0917	1	Gasket, Oil Pickup	7	102-1036	1	Gasket, Oil Pan
4			Screw, Cap - Hex Head	8	815-0547	36	Screw, Cap - Hex Head (Includes Washer) M8 x 20 MM
	718-1036	2	M8 x 20 MM				
	718-1048	2	M8 x 80 MM				

Oil Drain Hardware

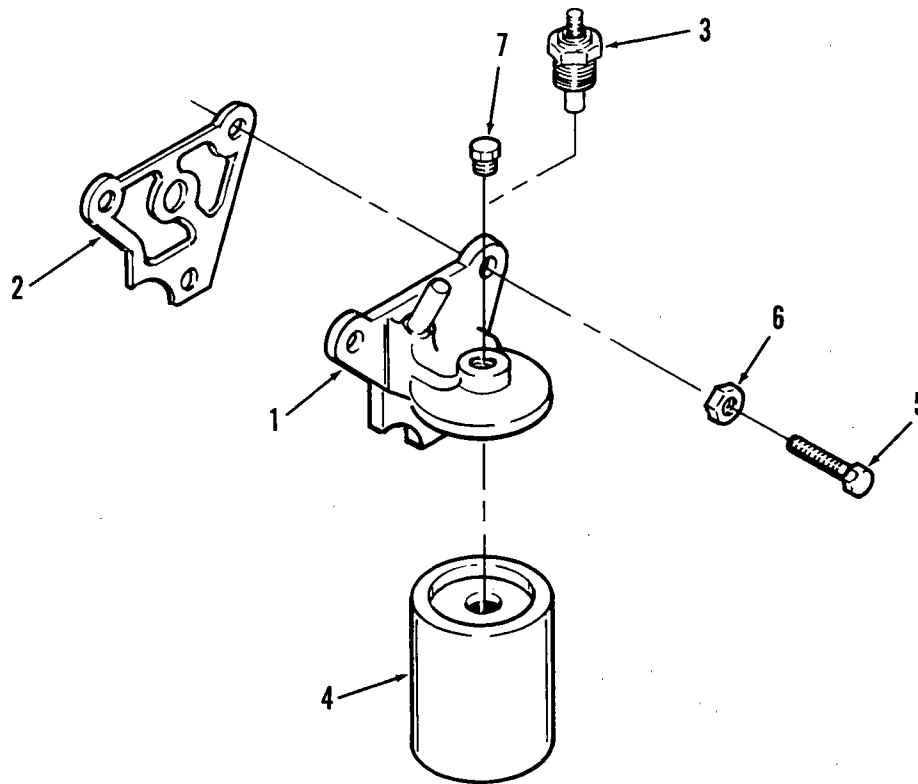


REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	503-0382	1	*Clamp, Hose
2	503-1276	1	*Hose, Oil Drain (14")
3	502-0415	1	*Adapter, Pipe to Hose
4	504-0011	1	*Valve, Shutoff
5	502-0772	1	#Adapter, Oil Drain (M12 x 1/2-14)
6	102-1046	1	#Gasket (12.3 MM ID)
7	508-0250	1	+Grommet
8	102-1235	1	+Bracket, Oil Drain
9	502-0876	1	+Cap, Pipe

REF NO.	PART NO.	QTY USED	PART DESCRIPTION
10	501-0494	1	+Line, Oil Drain (31")
11	102-1237	1	+Adapter, Oil Drain (M18 x 1/2-14)
12	102-1147	1	+Gasket (18.3 MM ID)

* - Used during early and middle portion of Spec A
 # - Used during early portion of Spec A
 + - Use began during later portion of Spec A

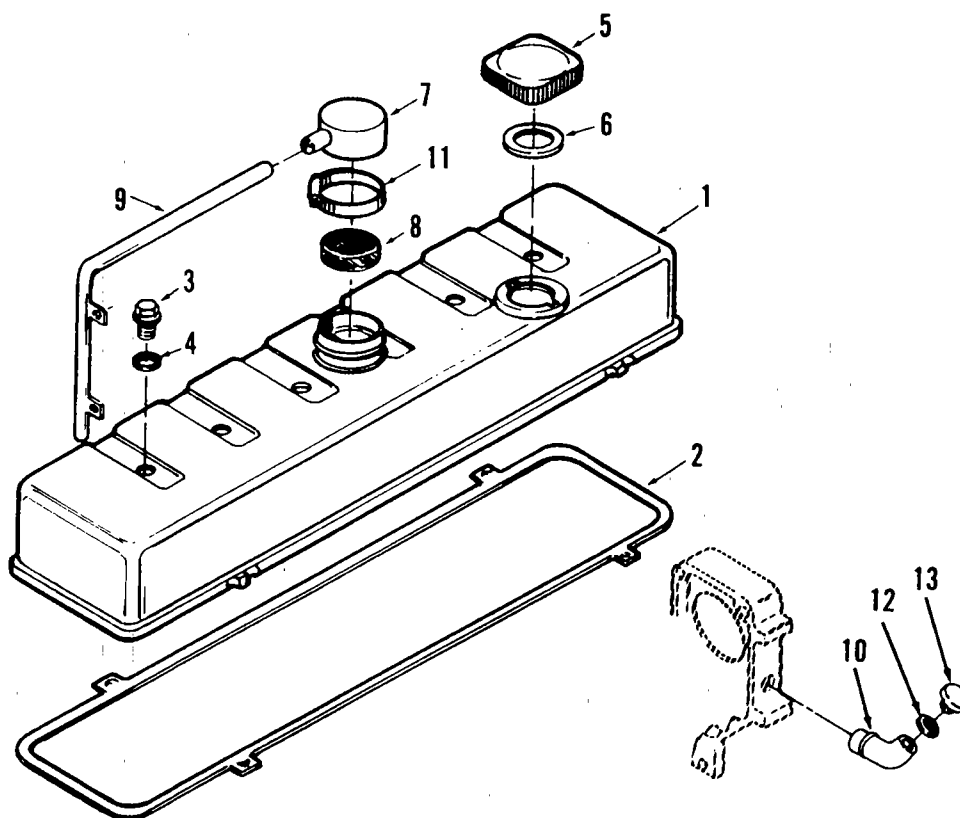
Oil Filter



REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	122-0613	1	Adapter, Oil Filter (Includes Gasket)
2	122-0635	1	Gasket, Adapter
3	193-0353	1	Sender, Oil Temperature (E3) Controls With 2 Indicator Lights and Oil Temperature Gauge

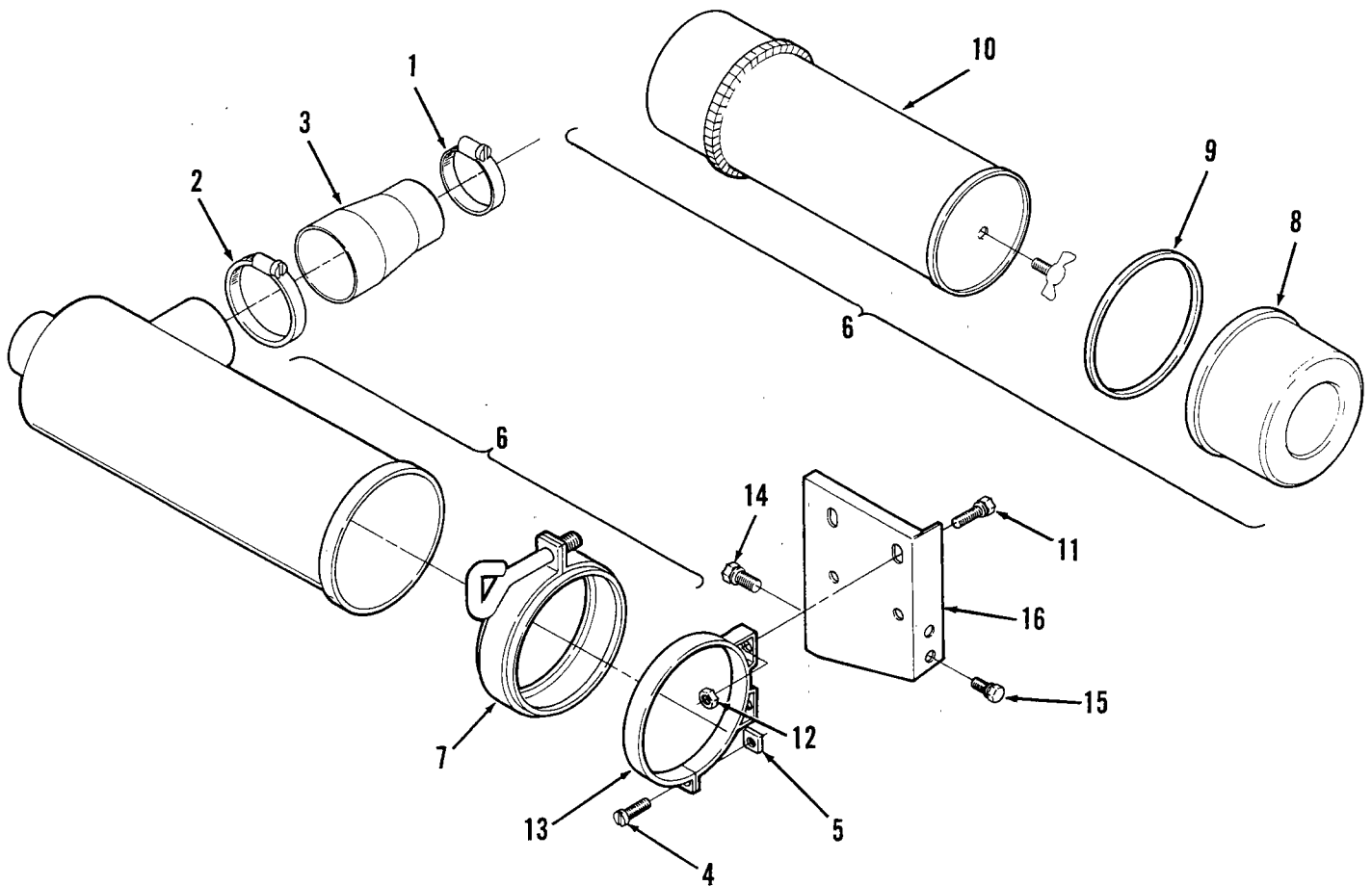
REF NO.	PART NO.	QTY USED	PART DESCRIPTION
4	122-0550	1	Filter, Oil
5	718-1037	3	Screw, Cap - Hex Head (M8 x 25 MM)
6	526-2108	3	Washer, Flat (M8)
7	505-0274	1	Plug, Pipe - Countersunk (1/8")

Oil Fill



REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	115-0347	1	Kit, Rocker Cover	7	123-1583	1	Cover, Breather
2	115-0244	1	Gasket, Rocker Cover	8	123-1675	1	Element, Breather
3	115-0320	6	Capnut, Rocker Cover	9	123-1589	1	Tube, Breather
4	115-0232	6	Gasket, Capnut	10	123-1558	1	Tube, Oil Fill
5	123-1605	1	Cap, Oil Fill (Includes Gasket)	11	503-1143	1	Clamp, Hose
6	123-1518	1	Gasket, Oil Fill Cap	12	509-0142	1	Seal, O-Ring
				13	123-1647	1	Cap, Oil Fill

Air Cleaner

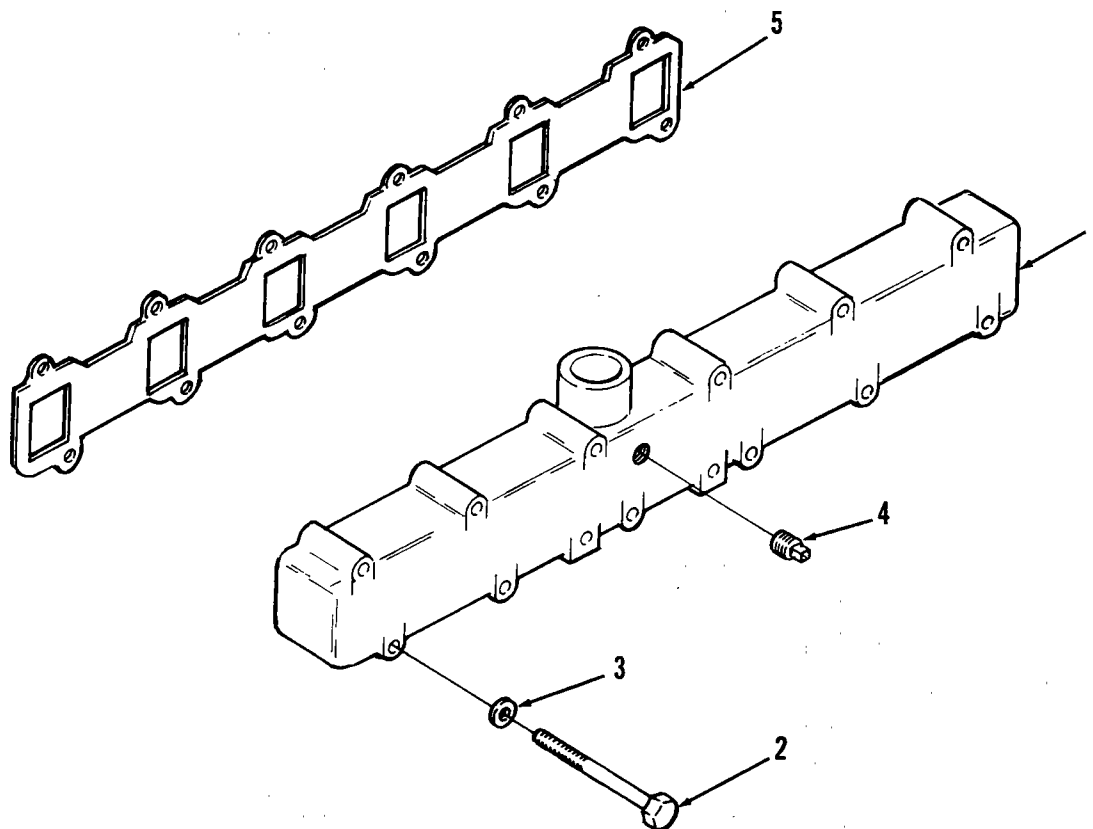


REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	503-1087	1	Clamp, Hose
2	503-0529	1	Clamp, Hose
3	140-1895	1	Reducer, Hose
4	812-0153	2	Screw, Machine - Round Head (1/4-20 x 1")
5	863-0002	2	Nut, Square (1/4-20)
6	140-1905	1	Cleaner Assembly, Air (Includes Thumbscrew and Parts Marked *)
7	140-1935	1	*Clamp
8	140-1933	1	*Cup
9	140-1934	1	*Seal, O-Ring
10	140-1932	1	*Element

REF NO.	PART NO.	QTY USED	PART DESCRIPTION
11	821-2060	4	Screw, Self-locking - Hex Washer Head (M10 x 20 MM)
12	870-2056	4	Nut, Self-locking - Hex Washer Head (M10)
13	140-0649	2	Band, Mounting
14	821-2076	1	Screw, Self-locking - Hex Washer Head (M12 x 25 MM)
15	821-2061	2	Screw, Self-locking - Hex Washer Head (M10 x 25 MM)
16	140-1916	1	Bracket, Mounting

* - Parts Included in 140-1905 Air Cleaner Assembly

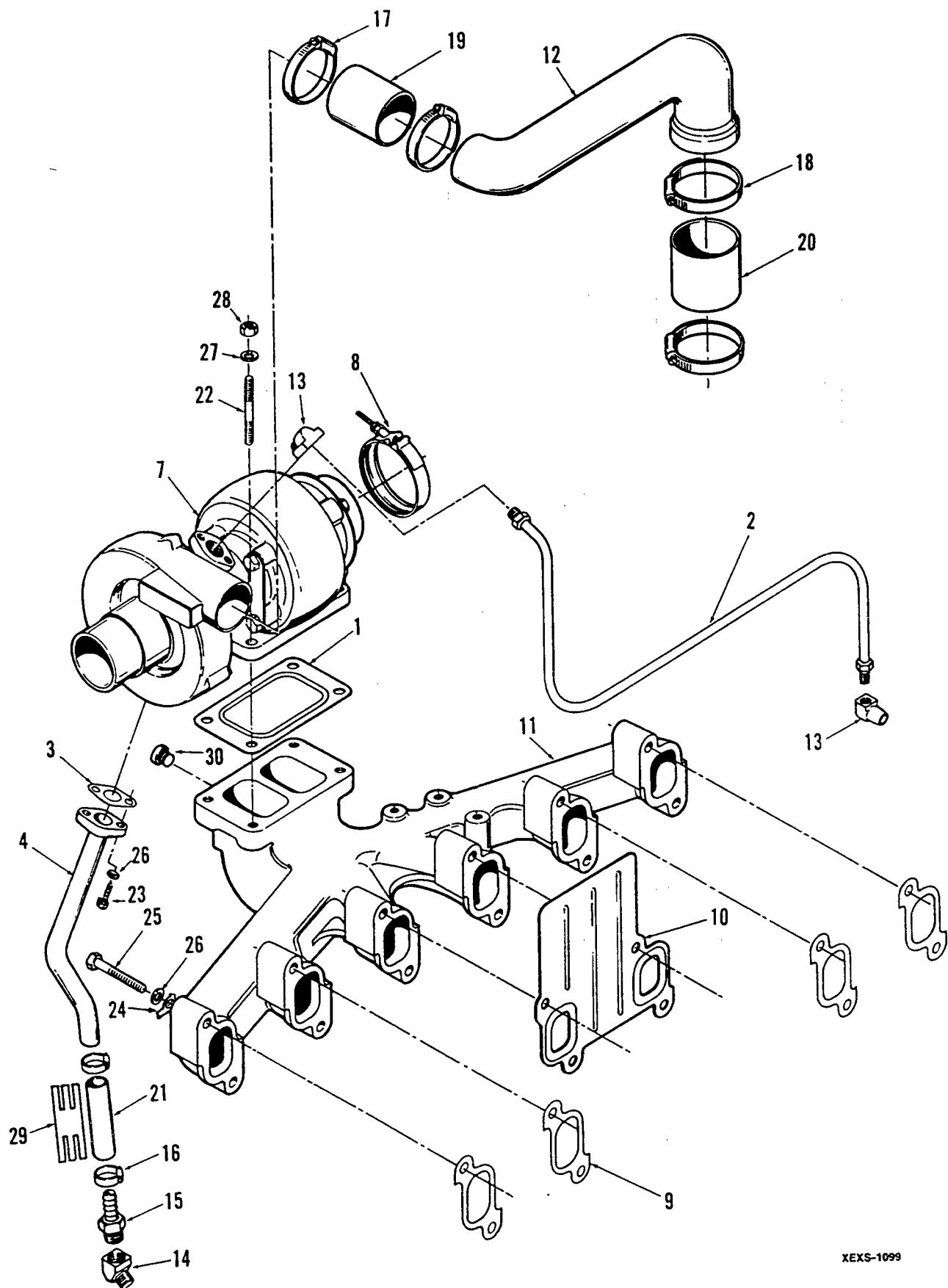
Intake Manifold



REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	154-2461	1	Manifold, Intake
2	718-1801	12	Screw, Cap - Hex Head (M8 x 85 MM)

REF NO.	PART NO.	QTY USED	PART DESCRIPTION
3	740-1006	12	Washer, Flat (M8)
4	505-0274	1	Plug, Pipe (1/8")
5	154-2300	1	Gasket, Intake Manifold

Exhaust Manifold and Turbocharger

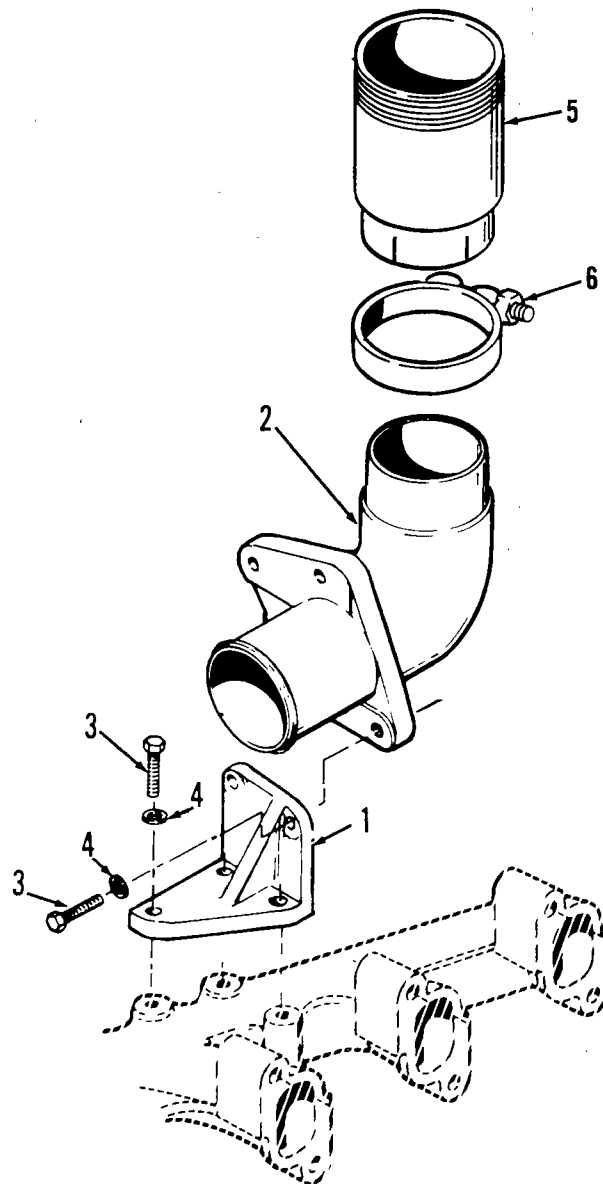


XEXS-1099

Exhaust Manifold and Turbocharger

REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	127-0324	1	Gasket, Turbocharger	18	503-1142	2	Clamp, Hose
2	127-0122	1	Line, Oil (Feed)	19	503-1159	1	Hose (50.8 MM x 80 MM)
3	127-0338	1	Gasket, Oil Drain Flange	20	503-1160	1	Hose (63.5 MM x 80 MM)
4	127-0341	1	Drain, Oil - Turbo	21	503-1161	1	Hose (19.5 MM x 70 MM)
7	127-0314	1	Turbocharger	22	520-2407	4	Stud
8	127-0315	1	Clamp, V	23	720-1035	2	Screw, Cap - Hex Head (M8 x 16 MM)
9	154-2162	4	Gasket, Exhaust Manifold	24	154-2648	12	Washer, Lock Tab
10	154-2325	1	Gasket, Exhaust Manifold	25	800-2516	12	Screw, Cap - Hex Head (M8 x 40 MM)
11	154-2578	1	Manifold, Exhaust	26	740-1006	14	Washer, Flat (M8)
12	154-2351	1	Tube, Cross Over	27	740-1008	4	Washer, Flat (M10)
13	502-0825	2	Elbow, Inverted Flare	28	750-1008	4	Nut, Hex (M10)
14	502-0826	1	Elbow, Street (45°)	29	127-0344	1	Shield, Heat
15	502-0827	1	Adapter, Pipe to Hose	30	505-0180	2	Plug, Pipe - Countersunk
16	503-1136	2	Clamp, Hose				
17	503-1141	2	Clamp, Hose				

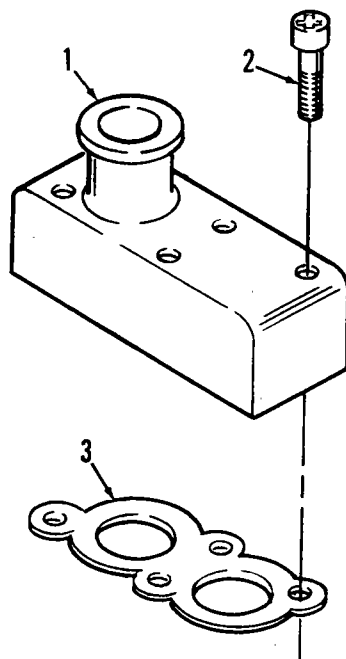
Exhaust Elbow



XEXS-1099-1

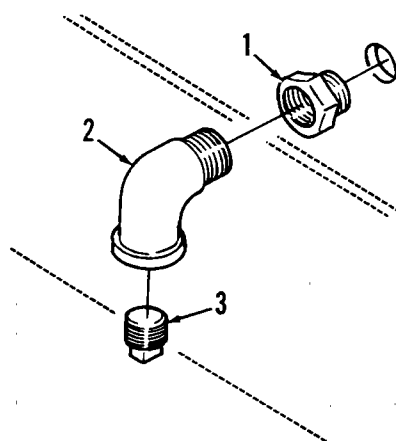
REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	127-0129	1	Bracket, Exhaust Duct	4	740-1006	5	Washer, Flat (M8)
2	127-0130	1	Flange, Exhaust Discharge	5	127-0132	1	Tube, Exhaust
3	720-1037	5	Screw, Cap - Hex Head (M8 x 25 MM)	6	503-0965	1	Clamp

Coolant Outlet Connector



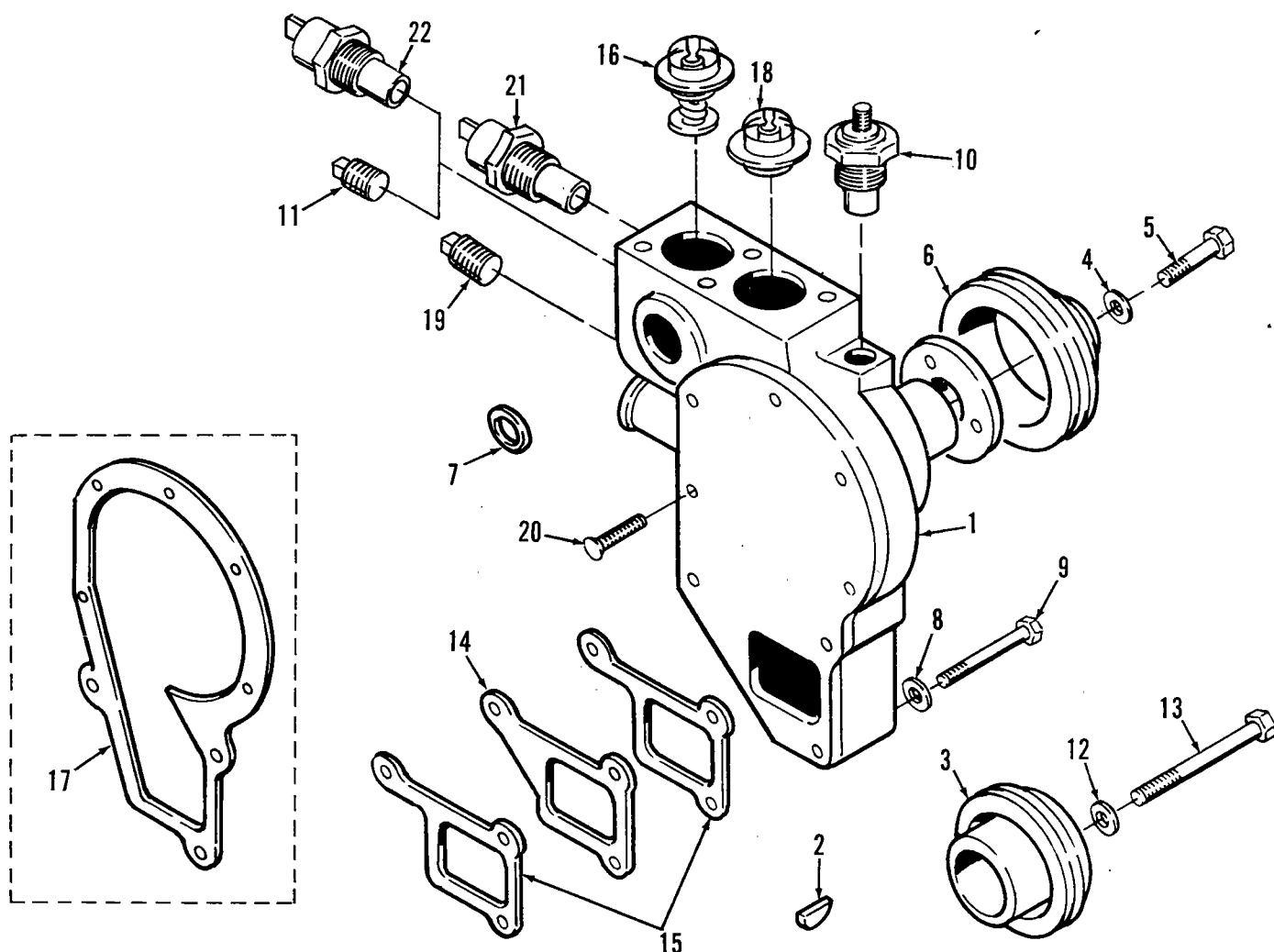
REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	309-0473	1	Cover, Thermostat (Includes Gasket)
2	725-1056	4	Screw, Cap - Socket Head (M8 x 50 MM)
3	309-0424	1	Gasket, Thermostat Cover

Coolant Heater Connection



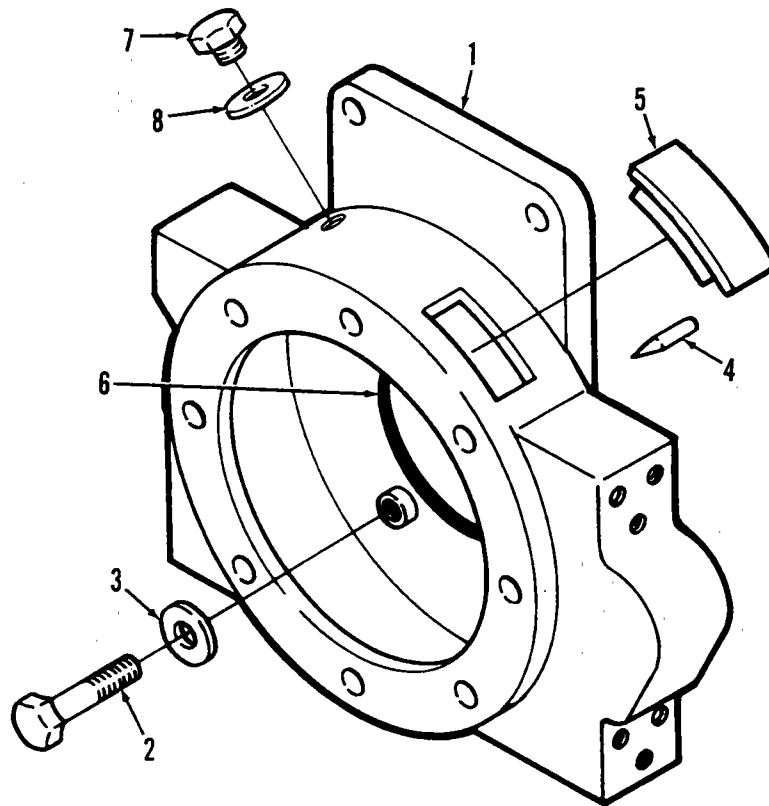
REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	505-0017	1	Bushing
2	502-0156	1	Elbow, Street
3	502-0153	1	Plug, Brass

Coolant Pump



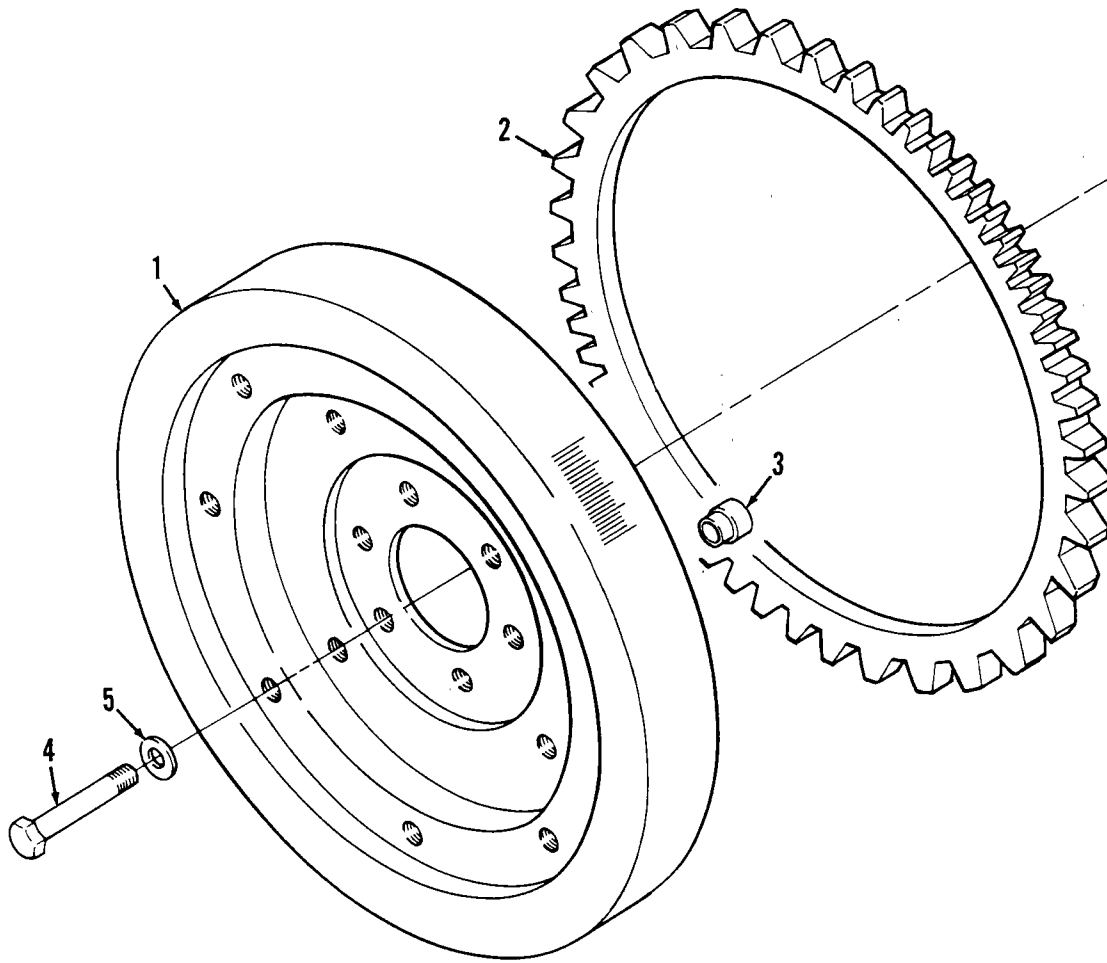
REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	131-0349	1	Kit, Coolant Pump (Includes Mounting Gaskets)	15	131-0294	2	Gasket, Pump Mounting
2	515-0245	1	Key - Crankshaft Pulley	16	309-0458	1	Kit, Thermostat (192") Includes Cover Gasket
3	104-1467	1	Pulley, Crankshaft	17	131-0335	1	Gasket, Backplate
4	740-1006	4	Washer, Flat (M8)	18	309-0462	1	Kit, Thermostat (180") Includes Cover Gasket
5	718-1035	4	Screw, Cap - Hex Head (M8 x 16 MM)	19	502-0317	1	Plug, Pipe (3/4")
6	131-0345	1	Pulley, Coolant Pump	20	815-0612	5	Screw, Countersunk - Flat Head - Torque Drive (Special)
7	509-0264	1	Seal, O-Ring	21	309-0437	1	Switch, Thermostat - High Engine Coolant Temperature (S1) (Opens at 202" F. - Closes at 222" F.)
8	740-1006	3	Washer, Flat (M8)	22	309-0436	1	Switch, Thermostat - High Engine Coolant Temperature (S2 - Pre-Alarm) (Opens at 196" F. - Closes at 216" F.) Controls With 9 Indicator Lights
9	718-1044	3	Screw, Cap - Hex Head (M8 x 60 MM)				
10	193-0318	1	Sender, Water Temperature (E2)				
11	502-0775	1	Plug, Pipe (3/8") Controls with 2 Indicator Lights				
12	526-0283	1	Washer, Flat (M8)				
13	720-1123	1	Screw, Cap - Hex Head (M16 x 60 MM)				
14	131-0324	1	Spacer, Coolant Pump				

Flywheel Housing



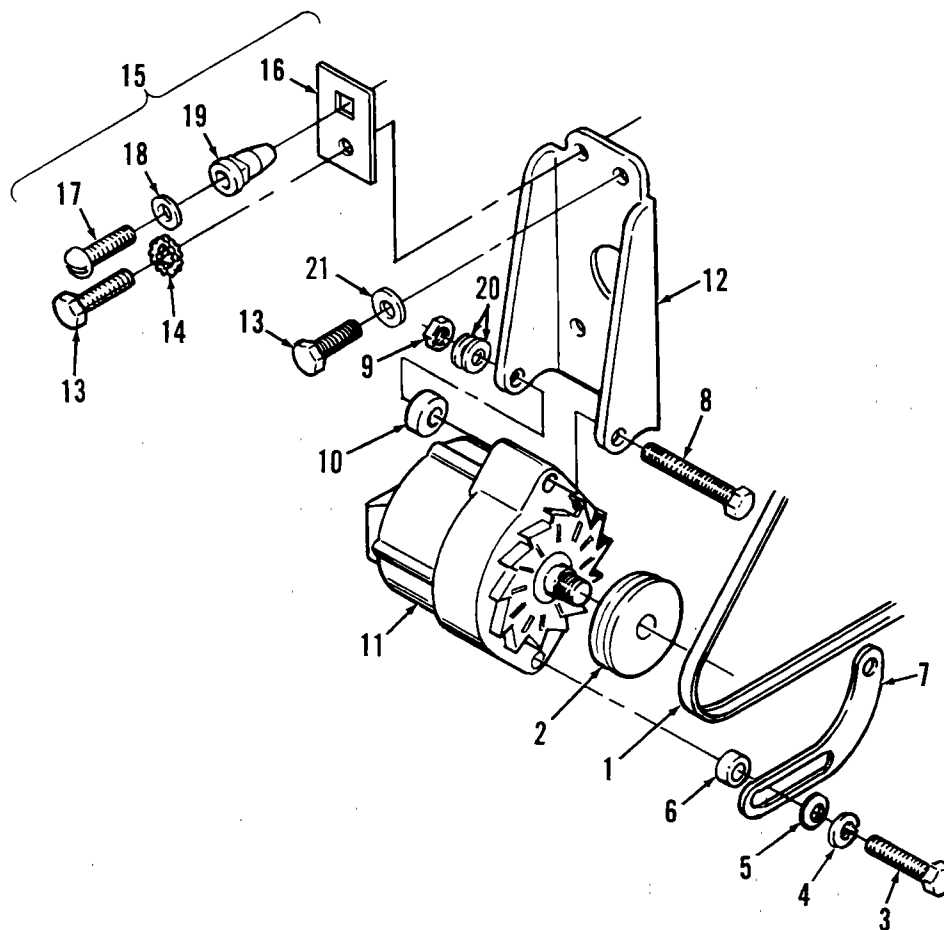
REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1			Housing, Flywheel (Includes Seal and Indicator)	2	718-1078	6	Screw, Cap - Hex Head (M12 x 50 MM)
	101-0740-02	1	With Magnetic Pickup Hole Drilled 47" From Horizontal	3	740-1801	6	Washer, Flat (M12)
				4	160-1292	1	Indicator, Timing
	101-0740-01	1	With Magnetic Pickup Hole Drilled 70" From Horizontal	5	101-0592	1	Plug, Timing Window
				6	101-0630	1	Seal, Flywheel Housing
				7	505-2012	1	Plug, Hex
				8	740-1014	1	Washer, Flat (M16)

Flywheel



REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	104-1503	1	Flywheel Assembly (Includes Ring Gear and Alignment Pin)	4	720-1804	6	Screw, Cap - Flange Hex Head (M10 x 38 MM)
2	104-1185	1	Gear, Ring	5	740-1008	6	Washer, Flat (M10)
3	104-1171	1	Pin, Alignment				

Alternator

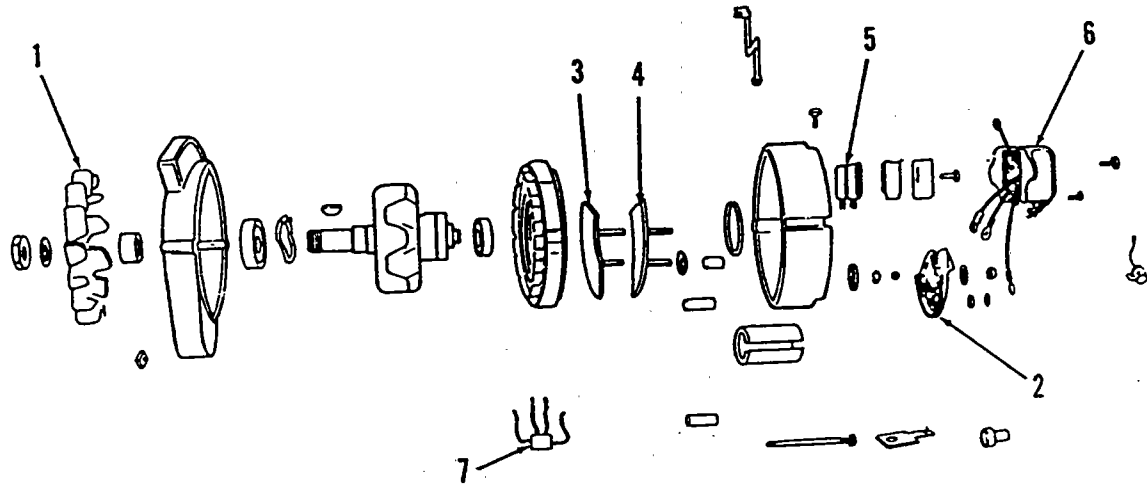


REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	511-0147-02	2	Belt
2	191-1333	1	Pulley
3	800-2060	1	Screw, Cap - Hex Head (M8 x 35 MM)
4	850-2008	1	Washer, Lock - Spring (M8)
5	526-2106	1	Washer, Flat (M8)
6	191-1541	1	Spacer
7	191-1312	1	Strap, Adjusting
8	800-2100	1	Screw, Cap - Hex Head (M10 x 100 MM)
9	860-2009	1	Nut, Hex (M10)
10	191-1321	1	Spacer
11	191-1525	1	Alternator (37 Amp) See Separate Page for Components
12	191-1332	1	Bracket, Mounting

REF NO.	PART NO.	QTY USED	PART DESCRIPTION
13	718-1037	4	Screw, Cap - Hex Head (M8 x 25 MM)
14	856-0010	1	Washer, Lock - EIT (3/8")
15	332-1292	1	Terminal Assembly (Includes Parts Marked *)
16	332-1281	1	*Bracket, Terminal
17	809-0035	1	*Screw, Sheet Metal - Round Head (#8 x 3/4")
18	508-0015	1	*Washer, Fiber
19	870-0196	1	*Nut, Insulation
20	740-1008	2	Washer, Flat (M10)
21	740-1006	3	Washer, Flat (M8)

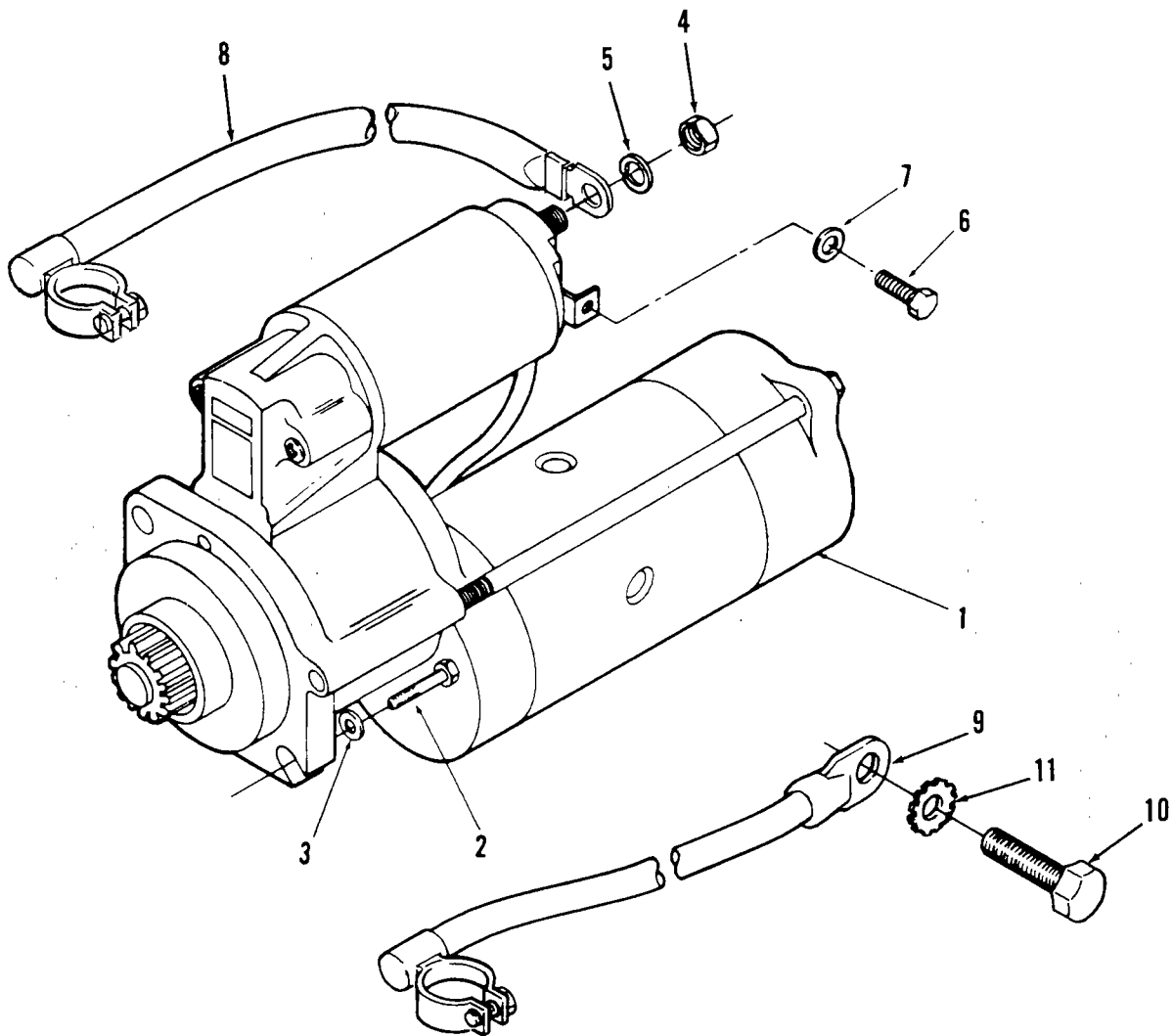
* - Parts Included in 332-1292 Terminal Assembly

Alternator Components



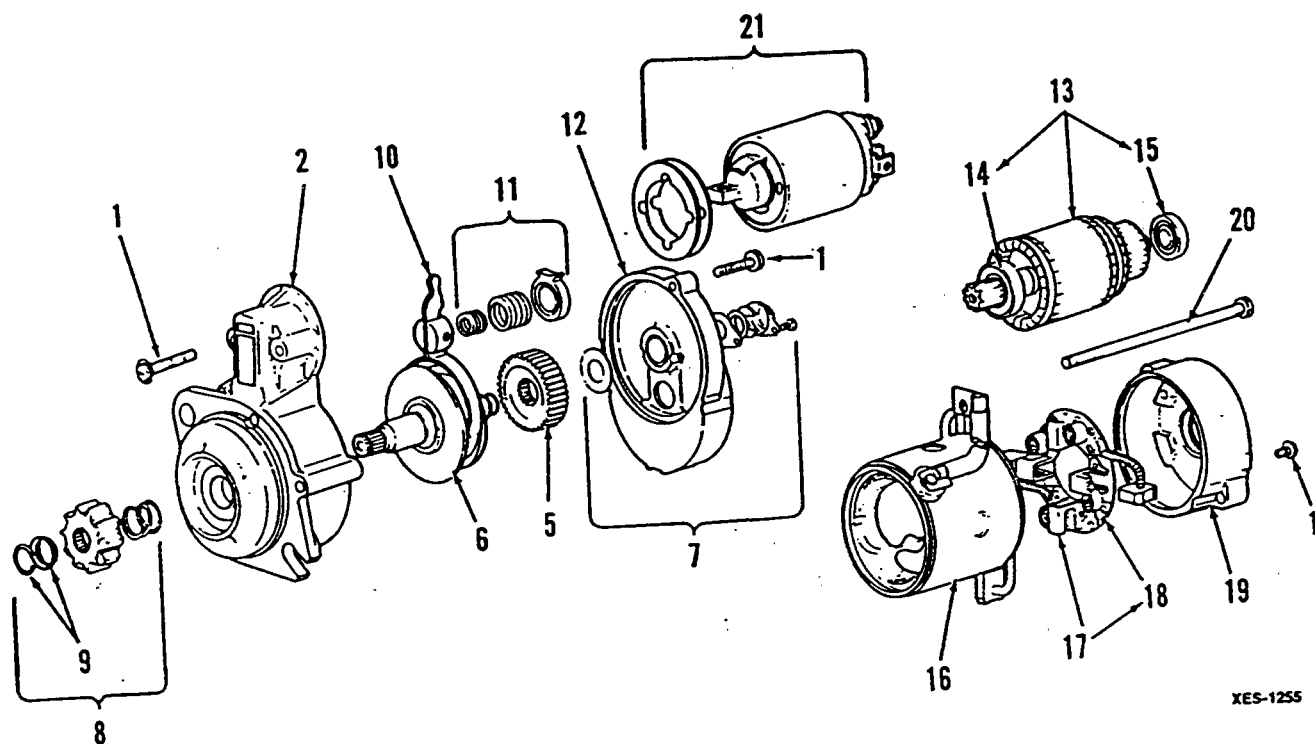
REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
	191-1525	1	Alternator (Complete) Used on Late Models - Has No Isolation Diodes on Back Side of Alternator (Replaces Early Models With Isolation Diode Assembly on Back Side of Alternator)	4	191-1452	1	Diode, Rectifier - Positive Used on Early Models with Isolation Diode Assembly
1	191-0943	1	Fan, Alternator		191-1559	1	Used on Late Models without Isolation Diode Assembly
2	191-1454	1	Diode Assembly, Isolation - Used on Early Models	5	191-0659	1	Brush Assembly Used on Early Models with Isolation Diode Assembly
3	191-1453	1	Diode, Rectifier - Negative Used on Early Models with Isolation Diode Assembly		191-1558	1	Used on Late Models without Isolation Diode Assembly
	191-1560	1	Used on Late Models without Isolation Diode Assembly	6	191-1457	1	Regulator, Voltage Used on Early Models with Isolation Diode Assembly
					191-1557	1	Used on Late Models without Isolation Diode Assembly
				7	191-1556	1	Diode, Trio - Used on Late Models without Isolator Diode Assembly

Starter



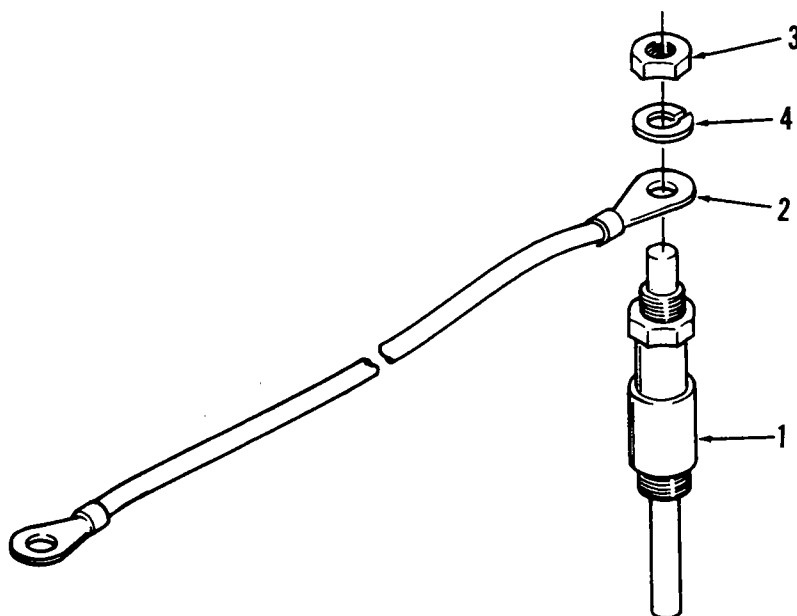
REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	191-1394	1	Starter (Includes Switch Terminal Hardware) (See Separate Page for Components)	7	850-2005	1	Washer, Lock - Spring (M5) Solenoid Terminal
2	720-1806	2	Screw, Cap - Flanged Hex Head (M12 x 30 MM)	8	416-0618	1	Cable, Battery - 42" (Positive)
3	740-1010	2	Washer, Flat (M12)	9	416-0530	1	Cable, Battery - 16" (Negative)
4	860-2008	1	Nut, Hex (M8) B+ Terminal	10	800-2110	1	Screw, Cap - Hex Head (M12 x 20 MM)
5	850-2008	1	Washer, Lock - Spring (M8) B+ Terminal	11	856-0013	1	Washer, Lock - EIT (1/2")
6	718-1002	1	Screw, Cap - Hex Head (M5 x 8 MM) Solenoid Terminal				

Starter Components



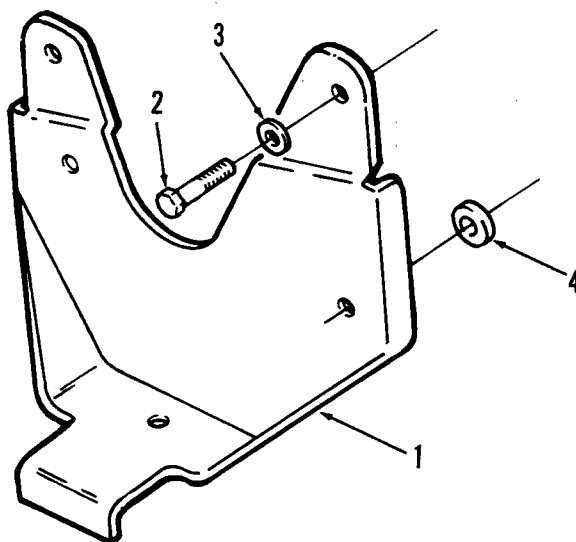
REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
	191-1394	1	Starter (Complete)	12	191-1439	1	Bracket Assembly, Center
1	191-1450	1	Screw Set	13	191-1438	1	Armature Assembly (Includes Bearings)
2	191-1449	1	Bracket Assembly, Front (Includes Bearing)	14	191-1437	1	Bearing, Center
5	191-1446	1	Gear	15	191-1436	1	Bearing, Rear
6	191-1445	1	Clutch	16	191-1435	1	Yoke Assembly (Includes Pole Shoes, Field Coil and Positive Brushes)
7	191-1444	1	Cover Set (Includes Cover, Plate, Washers, Snap Ring, and Screws)	17	191-1434	1	Holder, Brush (Includes Negative Brushes)
8	191-1443	1	Pinion Set (Includes Pinion, Spring, and Stopper Set)	18	191-1433	4	Spring, Brush
9	191-1442	1	Stopper Set (Includes Stopper and Ring)	19	191-1432	1	Bracket, Rear
10	191-1441	1	Lever Assembly	20	191-1431	1	Bolt Set
11	191-1440	1	Spring Set	21	191-1430	1	Switch Assembly

Glow Plug



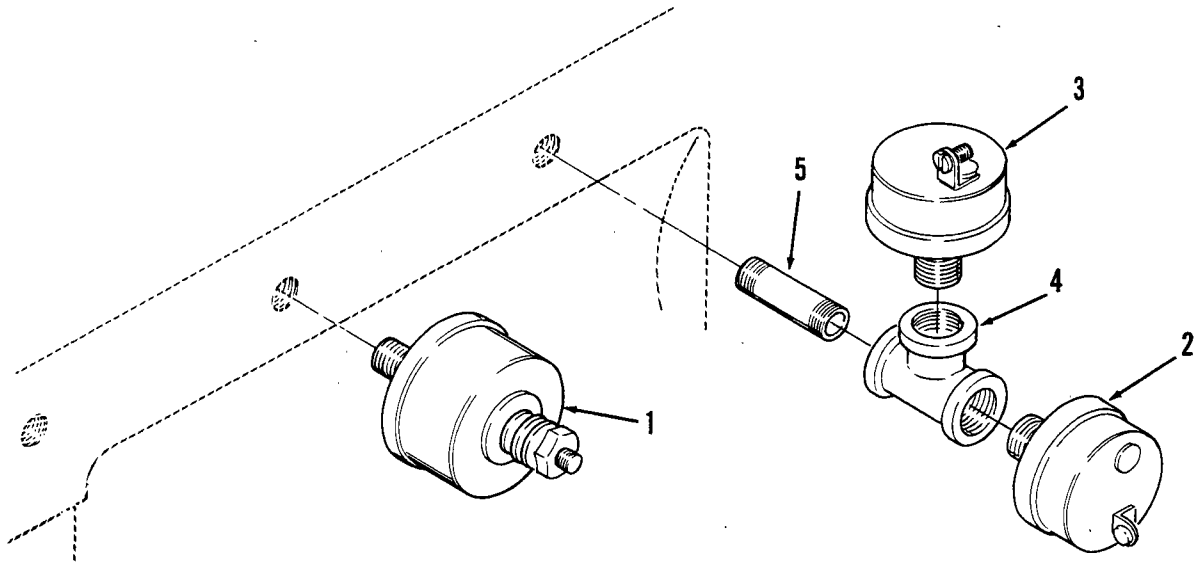
REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	333-0220	6	Plug, Glow	3	750-1002	6	Nut, Hex (M5)
2	336-4131	5	Lead, Glow Plug	4	850-2005	6	Washer, Lock - Spring (M5)

Front Engine Mount



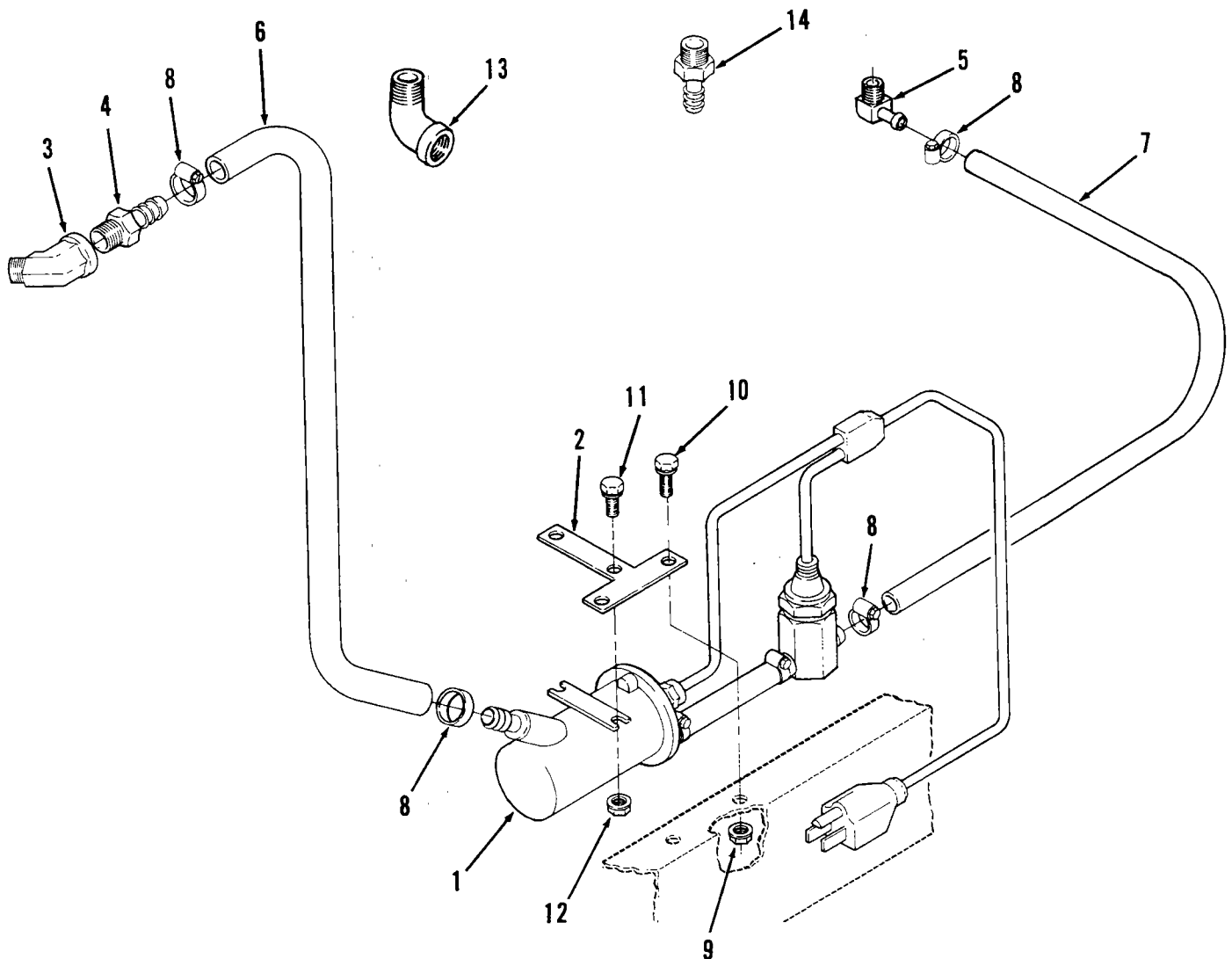
REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	403-1925	1	Bracket, Mount	3	740-1010	4	Washer, Flat (M12)
2	718-1086	2	Screw, Cap - Hex Head	4	403-1932	2	Spacer, Bracket Mounting
	718-1802	2	M12 x 90 MM (Top)				
		2	M12 x 95 MM (Bottom)				

Oil Pressure Switch



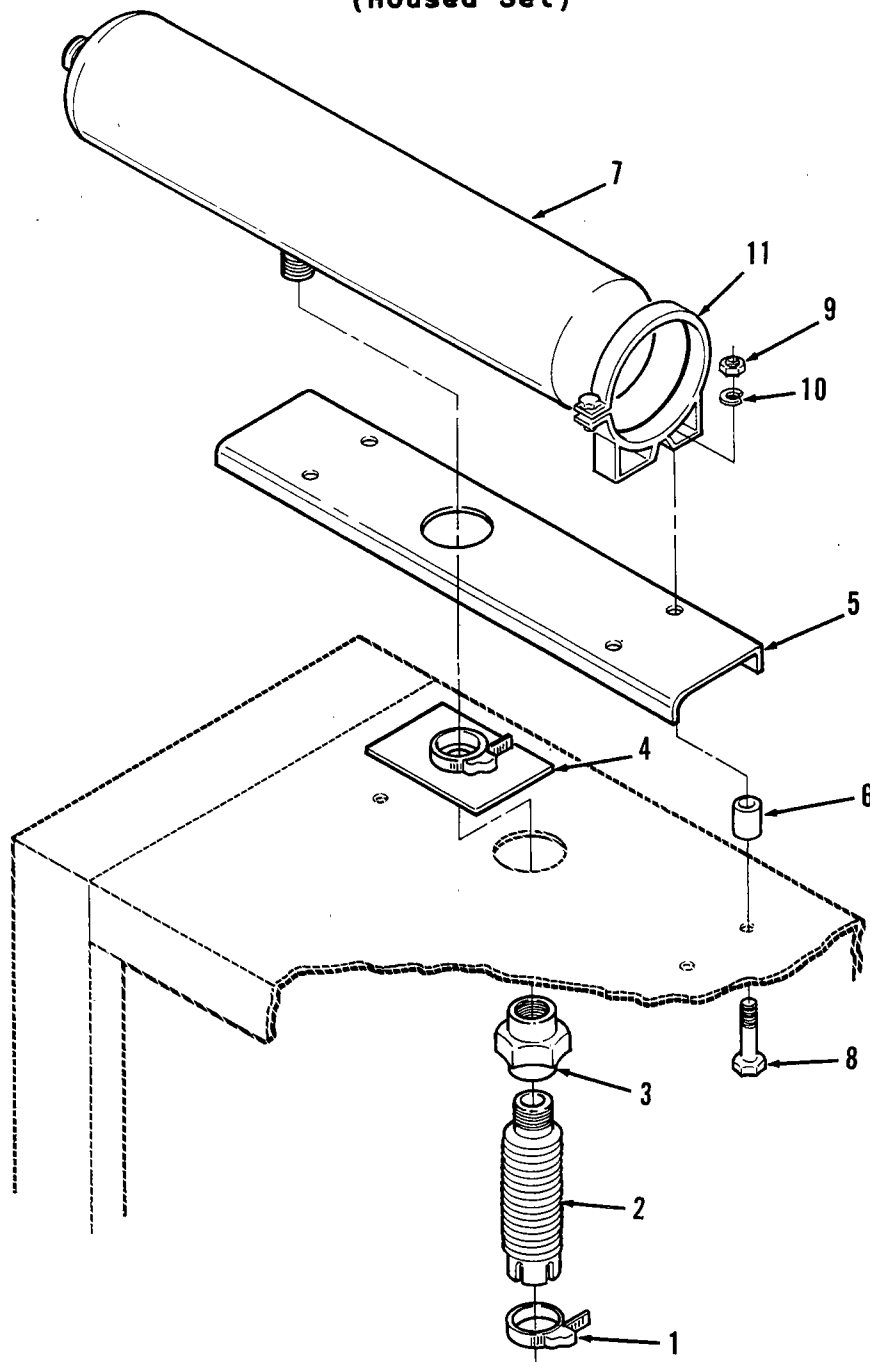
REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	193-0244	1	Sender, Oil Pressure (E1)	4	505-0059	1	Tee, Pipe (1/8") (Controls with 9 Indicator Lights)
2	309-0169	1	Switch, Oil Pressure (S3) Closes at 14 lbs. Descending	5	505-0098	1	Nipple, Pipe (1/8" x 3/4") (Controls with 9 Indicator Lights)
3	309-0272	1	Switch, Oil Pressure (S4 - Pre-Alarm) Closes at 20 lbs. Descending (Controls with 9 Indicator Lights)				

Engine Coolant Heater



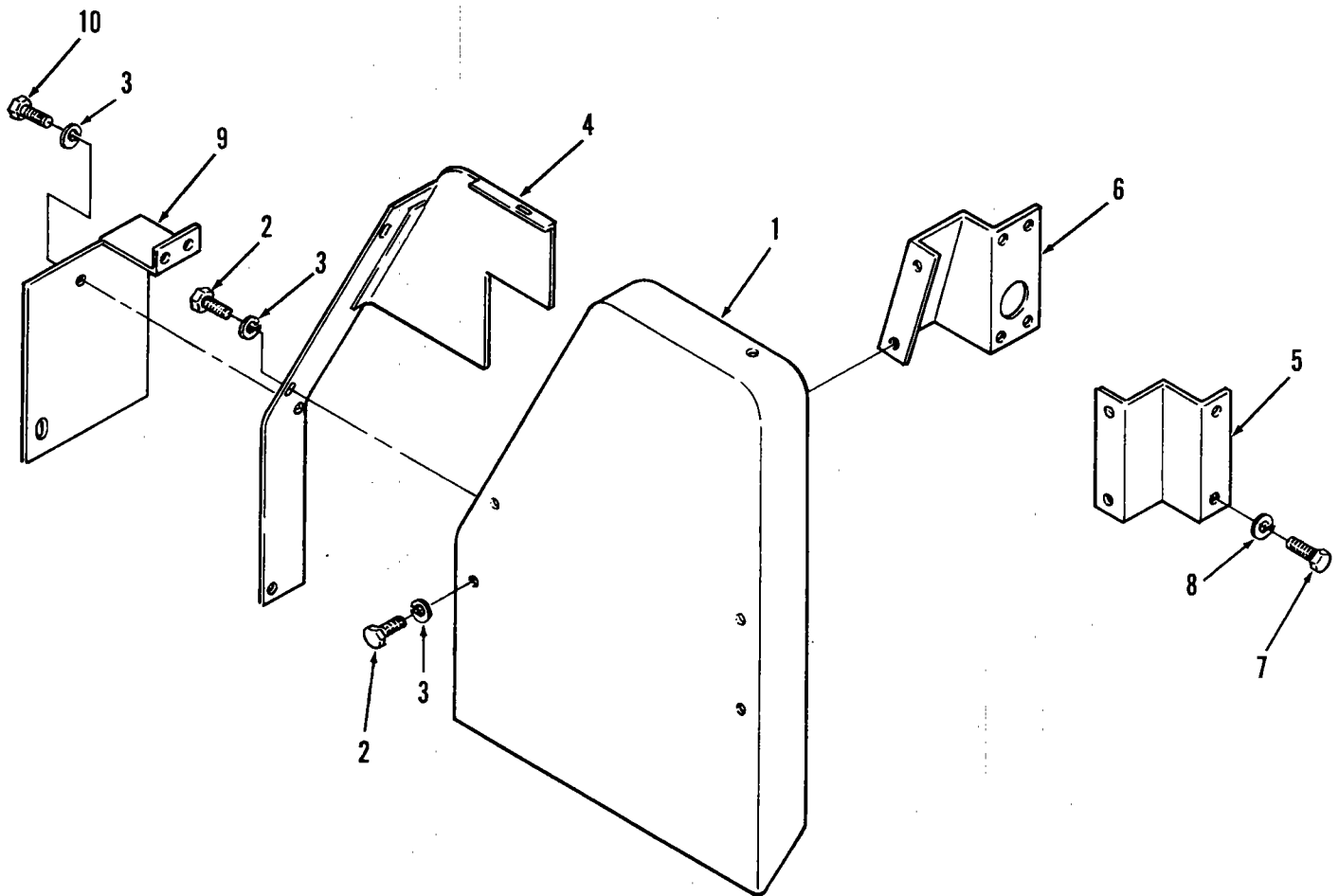
REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	333-0255-03	1	Heater, Engine Coolant 1250 Watt, 120 Volt AC, Single Phase	9	870-2056	2	Nut, Self-locking - Flange (M10)
	333-0255-06	1	1250 Watt, 240 Volt AC, Single Phase	10	821-2061	2	Screw, Self-locking - Flange (M10 x 25 MM)
2	130-2246	1	Plate, Mounting	11	821-2033	2	Screw, Self-locking - Flange (M6 x 16 MM)
3	502-0156	1	Elbow, Street - 45° (1/4")	12	870-2054	2	Nut, Self-locking - Flange (M6)
4	502-0613	1	Connector, Hose (1/4" Pipe to 5/8" Hose)	13	505-0120	1	Elbow, Pipe - 90° (3/8") Used on some early Spec A models
5	502-0817	1	Elbow, Pipe to Hose - 90° (3/8" Pipe to 5/8" Hose)	14	502-0816	1	Connector, Hose (3/8" Pipe to 5/8" Hose) Used on some early Spec A models
6	503-0833	1	Hose, Rubber (5/8" ID x 19")				
7	503-1169	1	Hose, Rubber (5/8" ID x 37")				
8	503-0183	4	Clamp, Hose				

Muffler (Housed Set)



REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	503-0965	1	Clamp, Hose	7	155-1994	1	Muffler, Exhaust
2	155-2041	1	Tube, Exhaust - Flexible	8	800-2067	4	Screw, Cap - Hex Head (M8 x 70 MM)
3	505-1341	1	Union, Pipe (2-1/2")	9	870-2055	4	Nut, Hex - Self-locking (M8)
4	155-2020	1	Shield, Rain	10	526-2100	8	Washer, Flat (M8)
5	155-1995	1	Shield, Heat	11	140-0649	2	Band, Mounting
6	155-1430	4	Spacer				

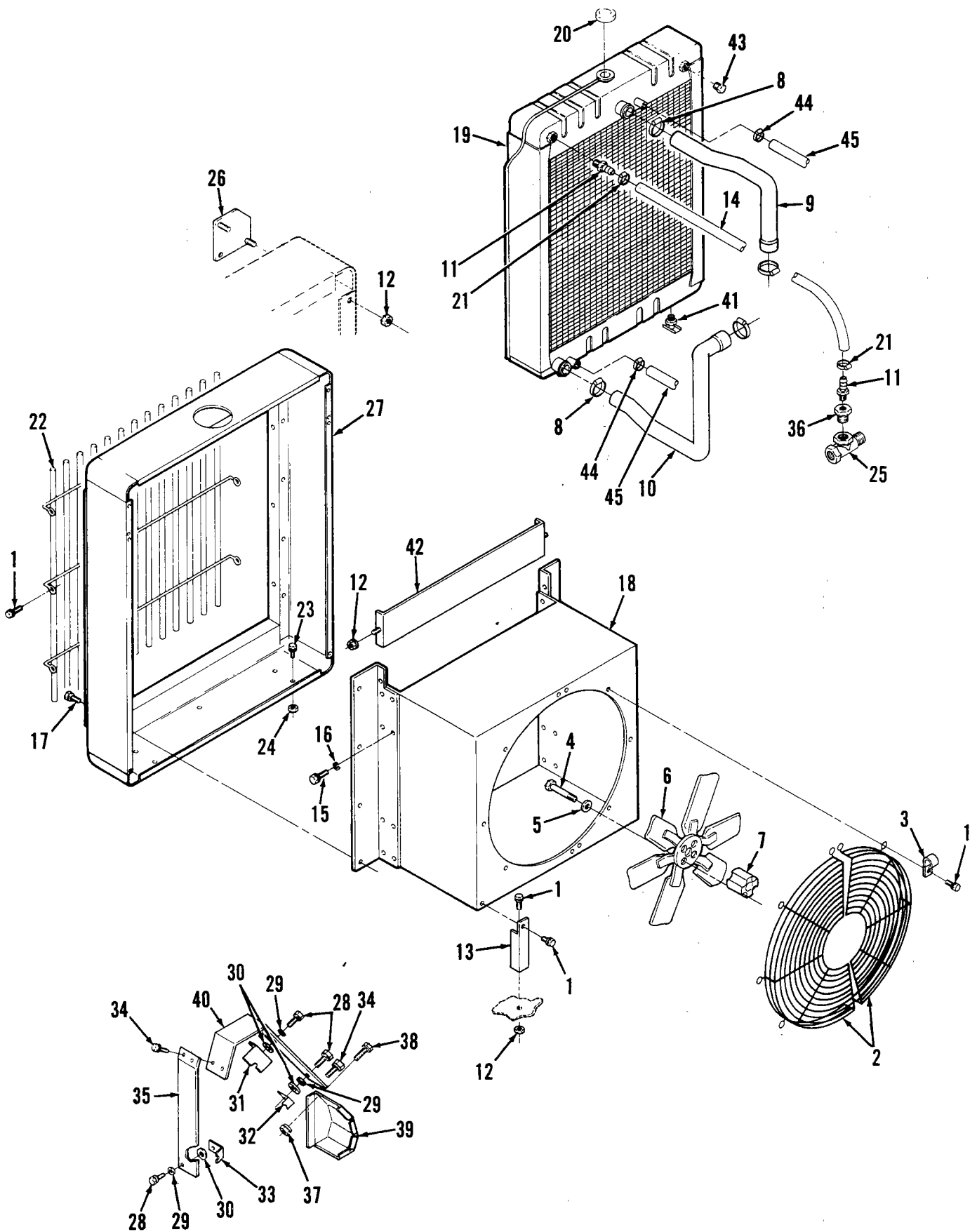
Belt Guard (With Remote Radiator)



REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	130-2792	1	Panel, Front
2	800-2029	8	Screw, Cap - Hex Head (M6 x 12 MM)
3	850-2006	9	Washer, Lock - Spring (M6)
4	130-2788	1	Panel, Side
5	130-2785	1	Bracket, Belt Guard (Left Hand)
6	130-2786	1	Bracket, Belt Guard (Right Hand)

REF NO.	PART NO.	QTY USED	PART DESCRIPTION
7	800-2056	2	Screw, Cap - Hex Head (M8 x 16 MM)
8	850-2008	2	Washer, Lock - Spring (M8)
9	191-1678	1	Guard, Alternator
10	718-1021	1	Screw, Cap - Hex Head (M6 x 20 MM)

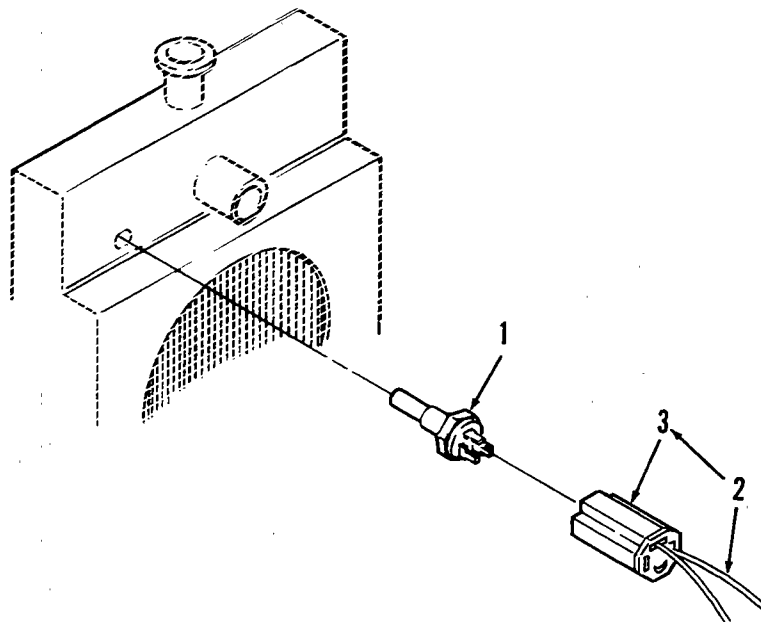
Cooling System



Cooling System

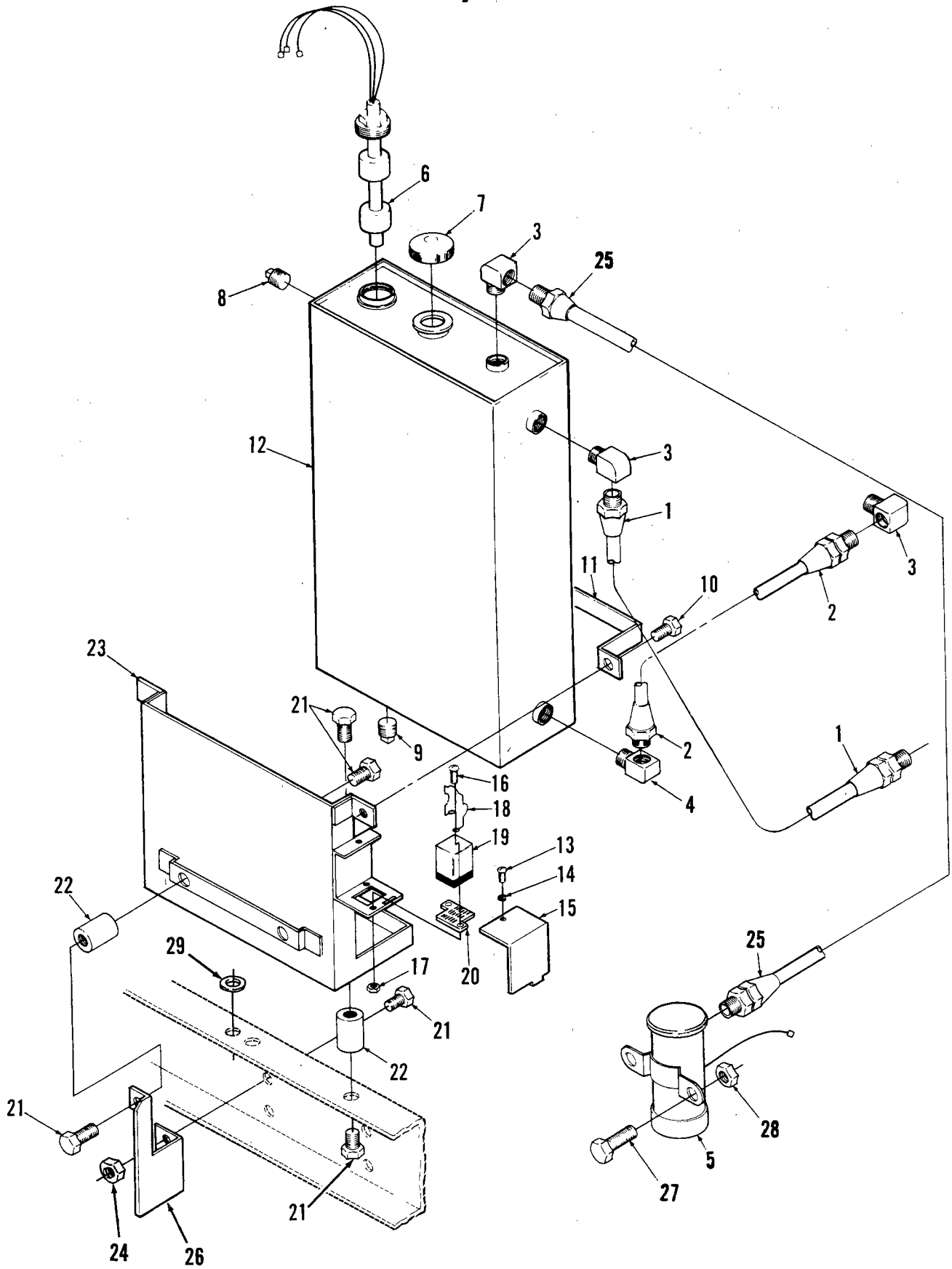
REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	821-2033	20	Screw, Self-locking - Hex Washer Head (M6 x 16 MM)	24	870-2056	5	Nut, Self-locking - Hex Washer Head (M10)
2	130-2432	2	Guard, Fan	25	502-0812	1	Tee, Male Run (3/8")
3	332-2634	2	Clamp, "J" - Hose Restraint	26	405-3240	4	Support, Corner
4	800-2074	4	Screw, Cap - Hex Head (M8 x 120 MM)	27	405-3202	1	Housing - Front
5	526-2100	4	Washer, Flat (M8)	28	821-2033	3	Screw, Self-locking - Hex Washer Head (M6 x 16 MM)
6	130-2433	1	Fan (22")	29	402-0546	3	Insert, Isolator
7	130-1877	1	Spacer, Fan (102 MM)	30	508-0248	3	Grommet, Rubber
8	503-0365	4	Clamp, Hose	31	191-1580	1	Bracket, Support - Belt Guard
9	503-1342	1	Hose, Radiator - Upper	32	191-1593	1	Bracket, Support - Belt Guard
10	503-1343	1	Hose, Radiator - Lower	33	191-1590	1	Bracket, Support - Belt Guard
11	502-0941	2	Connector, Hose - Barbed	34	821-2032	4	Screw, Self-locking - Hex Washer Head (M16 x 12 MM)
12	870-2054	12	Nut, Self-locking - Hex Washer Head (M6)	35	191-1638	1	Guard, Belt
13	130-2291	2	Support, Fan Shroud	36	505-0017	1	Bushing, Reducer (3/8" to 1/4")
14	503-1428	1	Hose (36")	37	870-2054	2	Nut, Self-locking - Hex Washer Head (M16)
15	800-2056	16	Screw, Cap - Hex Head (M8 x 16 MM)	38	821-0010	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
16	850-2008	16	Washer, Lock - Spring (M8)	39	191-1539	1	Guard, Belt
17	821-2032	8	Screw, Self-locking - Hex Washer Head (M6 x 12 MM)	40	191-1637	1	Guard, Belt
18	130-2377	1	Shroud, Fan	41	504-0003	1	Cock, Drain (1/4")
19	130-2431	1	Radiator	42	130-2441	1	Insert, Shroud
20	130-2003	1	Cap, Pressure	43	502-0153	1	Plug, Hex Head (1/4")
21	503-0685	2	Clamp, Hose	44	503-0183	2	Clamp, Hose
22	405-3207	1	Grille	45	503-1427	1	Hose - Special (67")
23	821-2061	5	Screw, Self-locking - Hex Washer Head (M10 x 25 MM)				

Low Coolant Level Switch



REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	193-0322	1	Switch - Coolant Level (S7)
2	338-1691	1	Harness, Wiring (Includes Housing)
3	323-1236	1	Housing, Connector

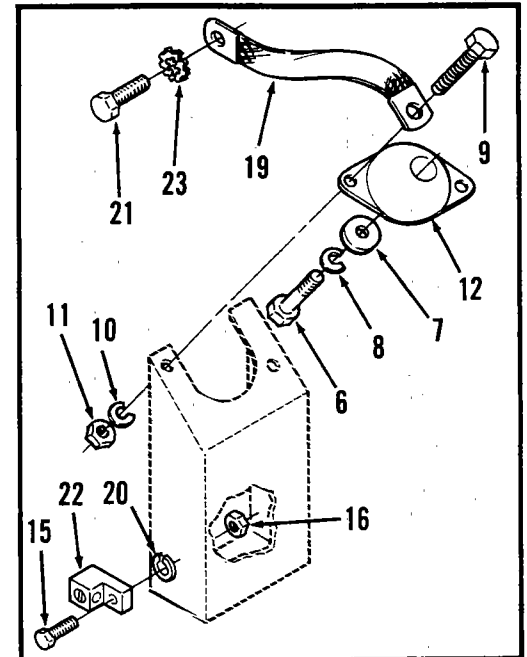
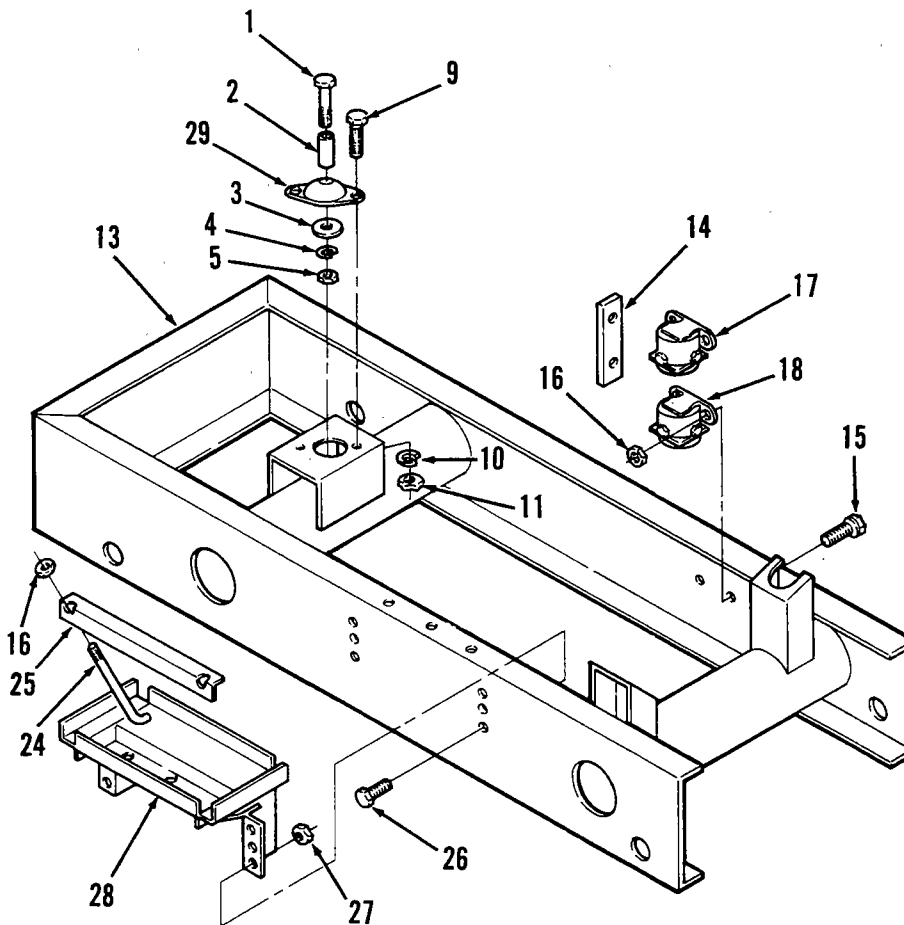
Day Tank



Day Tank

REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	501-0528	1	Line, Fuel - Flexible (45")	16	812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")
2	501-0491	1	Line, Fuel - Flexible (32")	17	870-1183	2	Nut, Self-locking - Hex Washer Head With ET (#6-32)
3	502-0916	3	Elbow, Inverted Male - 90°	18	307-1157	1	Spring, Holddown - Relay
4	502-0054	1	Elbow, Street - 90°	19	307-1058	1	Relay (12 Volt DC)
5	149-1828	1	Pump, Fuel (12 Volt DC)	20	323-0765	1	Socket, Relay
6	415-0321	1	Switch, Float - Liquid Level (Includes Mounting Plug)	21	821-0014	12	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
7	159-0007	1	Cap, Fuel Tank	22	402-0078	4	Mount, Vibration
8	505-0054	1	Plug, Pipe - Square Head (1/4")	23	415-0544	1	Bracket, Mounting
9	505-0110	1	Plug, Pipe - Square Head (3/8")	24	870-0257	4	Nut, Self-locking - Hex Washer Head (5/16-18)
10	821-0013	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 1")	25	501-0492	1	Line, Fuel - Flexible (20")
11	415-0451	1	Strap, Retaining - Tank	26	415-0545	2	Bracket, Support - Fuel Tank
12	415-0445	1	Tank, Fuel - Day (Includes Cap) (3-1/2 Gallons)	27	821-0018	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 5/8")
13	813-0098	1	Screw, Machine - Round Head (#10-32 x 3/8")	28	870-0212	2	Nut, Self-locking - Hex Washer Head (1/4-20)
14	850-0030	1	Washer, Lock - Spring (#10)	29	526-0113	1	Washer, Flat (5/16") Used on Housed Sets
15	415-0326	1	Cover, Access - Relay				

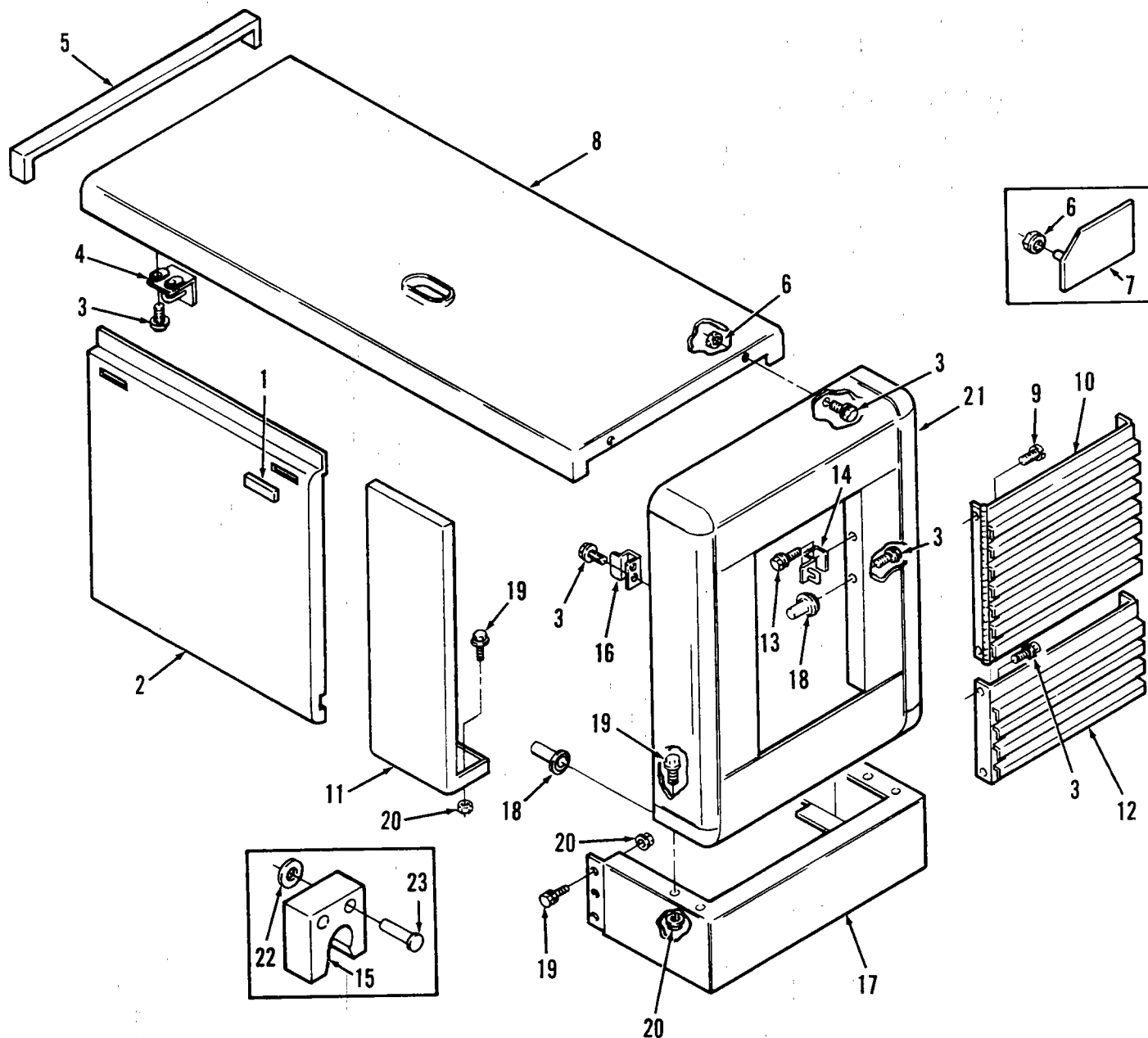
Chassis



REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	800-2126	1	Screw, Cap - Hex Head (M12 x 110 MM)
2	402-0542	1	Insert, Isolator
3	526-0172	1	Washer, Flat (1/2" ID x 2-1/4" OD x 1/4" Thk)
4	850-2012	1	Washer, Lock - Spring (M12)
5	860-2010	1	Nut, Hex (M12)
6	800-2186	2	Screw, Cap - Hex Head (M16 x 120 MM)
7	526-0242	2	Washer, Flat (11/16" ID x 2-7/8" OD x 1/4" Thk)
8	850-2066	2	Washer, Lock - Spring (M16)
9	800-2111	6	Screw, Cap - Hex Head (M12 x 25 MM)
10	850-2012	6	Washer, Lock - Spring (M12)
11	860-2010	6	Nut, Hex (M12)
12	402-0540	2	Mount, Vibration
13	403-2171	1	Skid
14	332-0602	1	Jumper, Solenoid
15	821-2036	5	Screw, Self-locking - Hex Washer Head (M6 x 30 MM)

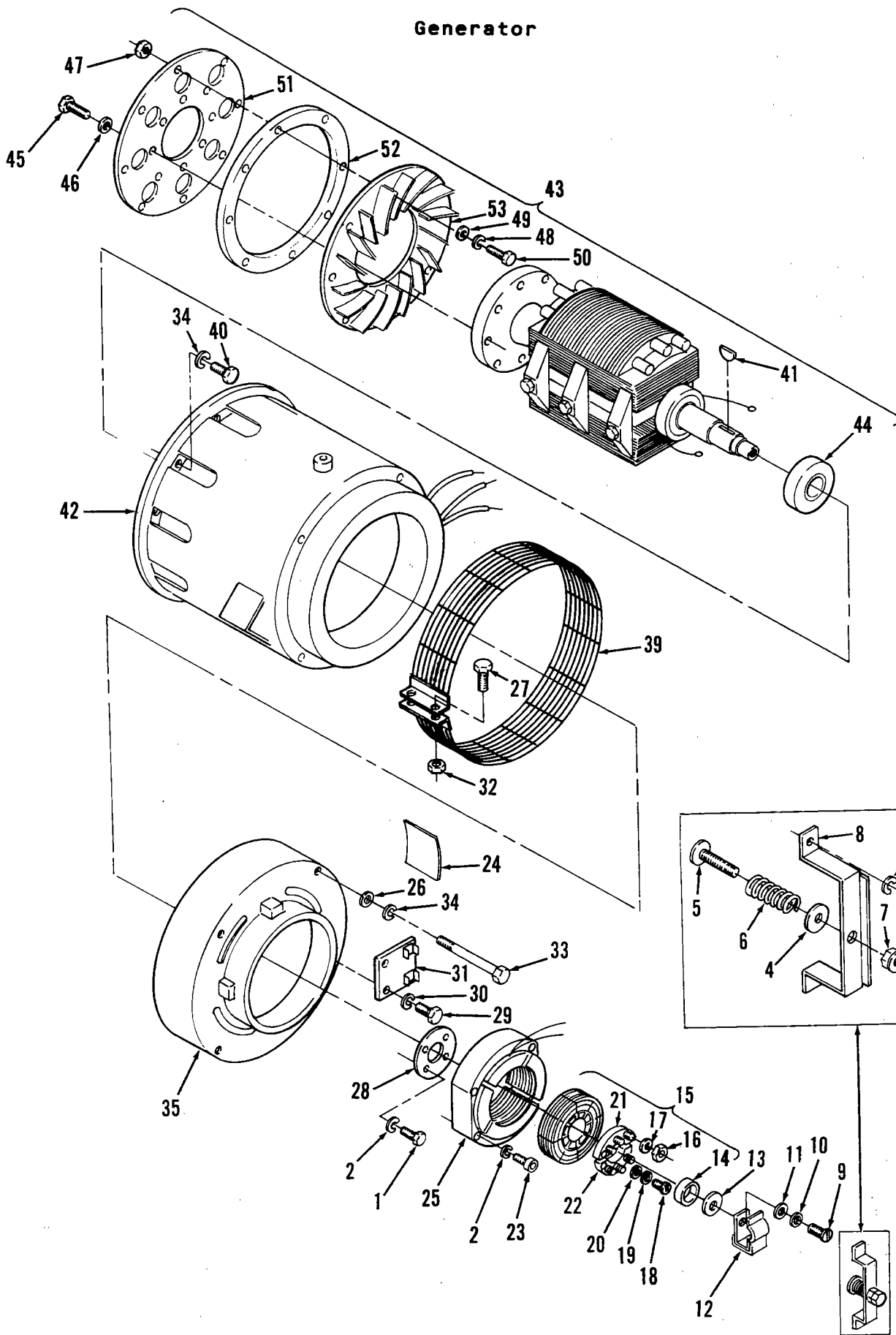
REF NO.	PART NO.	QTY USED	PART DESCRIPTION
16	870-2054	7	Nut, Self-locking - Hex Washer Head (M6)
17	307-1031	1	Relay, Solenoid - Heater (Upper) (K2)
18	307-1166	1	Relay, Solenoid - Start (Lower) (K1)
19	337-0090	1	Strap, Ground - Engine
20	853-2006	1	Washer, Lock - EIT (M6)
21	800-2110	1	Screw, Cap - Hex Head (M12 x 20 MM)
22	332-1473	1	Lug, Solderless
23	856-0013	1	Washer, Lock - EIT (1/2")
24	416-0828	2	Rod, J Hook (M6)
25	416-0830	1	Bracket, Holddown - Battery
26	821-2047	9	Screw, Self-locking - Hex Washer Head (M8 x 25 MM)
27	870-2055	9	Nut, Self-locking - Hex Washer Head (M8)
28	416-0840	1	Tray, Battery
29	402-0541	1	Mount, Vibration

Housing



REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	406-0561	8	Latch, Door	12	405-3082	1	Grille
2	405-3302	4	Door	13	821-2020	2	Screw, Self-locking - Hex Washer Head (M5 x 12 MM)
3	821-2033	50	Screw, Self-locking - Hex Washer Head (M6 x 16 MM)	14	406-0555	1	Latch, Cover
4	406-0552	4	Latch, Door	15	405-1872	8	Clip, Door
5	895-0195	-	Stripping, Weather - Bulk (Order by the foot - 8 foot required)	16	406-0553	8	Catch, Door
6	870-2054	22	Nut, Self-locking - Hex Washer Head (M6)	17	403-2190	1	Skid, Rear
7	405-3240	8	Support, Corner	18	870-2026	10	Nut, Weld (M6)
8	405-3304	1	Panel, Top	19	821-2061	15	Screw, Self-locking - Hex Washer Head (M10 x 25 MM)
9	822-3073	3	Screw, Machine - Pan Head (M4 x 10 MM)	20	870-2056	15	Nut, Self-locking - Hex Washer Head (M10)
10	405-2677	1	Cover, Control	21	405-3241	1	Panel, Rear
11	405-3247	2	Post, Door	22	526-0003	16	Washer, Flat (#8)
				23	818-0150	16	Rivet

Generator



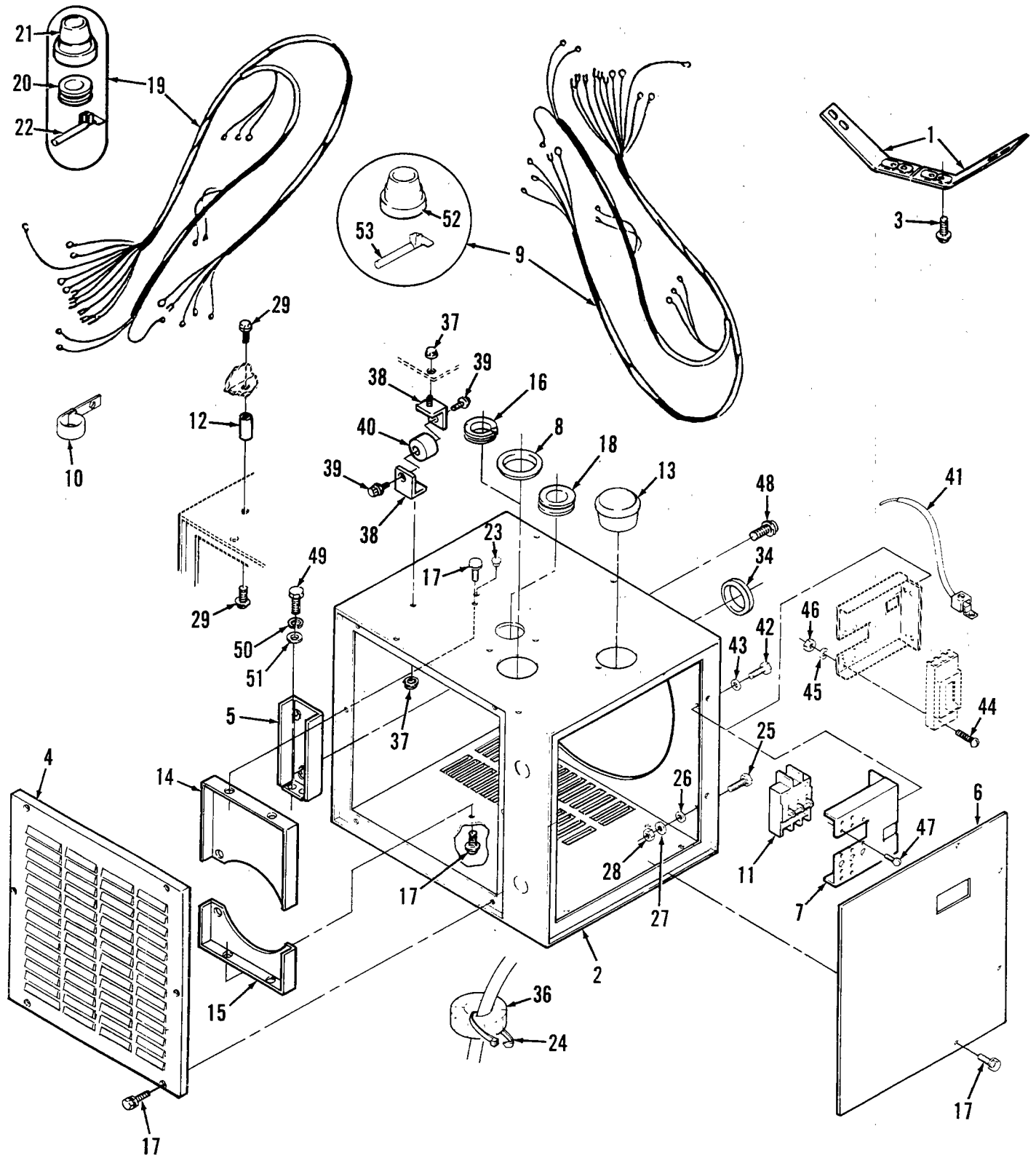
Generator

REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	800-2029	6	Screw, Cap - Hex Head (M6 x 12 MM)	28	232-2959	1	Cover, Bearing
2	850-2006	10	Washer, Lock - Spring (M6)	29	800-2004	2	Screw, Cap - Hex Head (M5 x 12 MM)
3	860-2006	2	Nut, Hex (M5)	30	850-2005	2	Washer, Lock - Spring (M5)
4	526-2060	2	Washer, Flat (M5)	31	232-2418	1	Board, Terminal
5	150-1962	1	Point, Contact	32	870-0212	2	Nut, Hex (1/4-20)
6	150-1964	1	Spring	33	800-2100	4	Screw, Cap - Hex Head (M10 x 100 MM)
7	870-0171	1	Nut, Insulating	34	850-2010	16	Washer, Lock - Spring (M10)
8	150-1963	1	Bracket, Mounting	35	211-0367	1	Bell, End
9	720-1057	1	Screw, Cap - Hex Head (M10 x 40 MM)	39	234-0819	1	Screen, Fan
10	853-2010	1	Washer, Lock - ET (M10)	40	800-2088	12	Screw, Cap - Hex Head (M10 x 35 MM)
11	526-2120	3	Washer, Flat (M10)	41	515-0158	1	Key - Exciter Rotor
12	150-2038	1	Switch, Overspeed	42	220-4068	1	Stator, Generator Code 9XR
13	526-2129	1	Washer, Flat (11 MM ID x 45 MM OD x 5 MM Thk)		220-3818	1	Code 15R
14	232-2929	1	Spacer, Exciter		220-3861	1	Code 515R
15	201-2299	1	Rotor Assembly, Exciter (Includes Parts Marked *)	43	201-3103	1	Rotor Assembly, Generator (Includes Parts Marked #)
16	870-0131	6	*Nut, Self-locking - Hex With ET Lockwasher (#10-32)	44	510-0063	1	#Bearing, Ball
17	526-0008	6	*Washer, Flat (#10)	45	800-2112	8	#Screw, Cap - Hex Head (M12 x 30 MM)
18	813-0100	4	*Screw, Machine - Round Head (#10-32 x 1/2")	46	526-2148	8	#Washer, Flat (M12)
19	853-0008	4	*Washer, Lock - ET (#10)	47	860-2009	8	#Nut, Hex (M10)
20	526-0008	4	*Washer, Flat (#10)	48	850-2010	8	#Washer, Lock - Spring (M10)
21	358-0069	1	*Rectifier Assembly - Positive	49	526-2121	8	#Washer, Flat (M10)
22	358-0070	1	*Rectifier Assembly - Negative	50	800-2533	8	#Screw, Cap - Hex Head (M10 x 55 MM)
23	802-2073	4	Screw, Cap - Socket Head (M6 x 45 MM)	51	232-3071	1	#Disk, Drive
24	508-0239	-	Edging - Bulk (Order by the foot - 1 foot required)	52	232-3082	1	#Spacer
25	220-3968	1	Stator, Exciter	53	205-0161	1	#Fan
26	526-2121	4	Washer, Flat (#10)				
27	800-0012	2	Screw, Cap - Hex Head (1/4-20 x 1-3/4")				

* - Parts Included in 201-2299 Exciter Rotor Assembly

- Parts Included in 201-3103 Generator Rotor Assembly

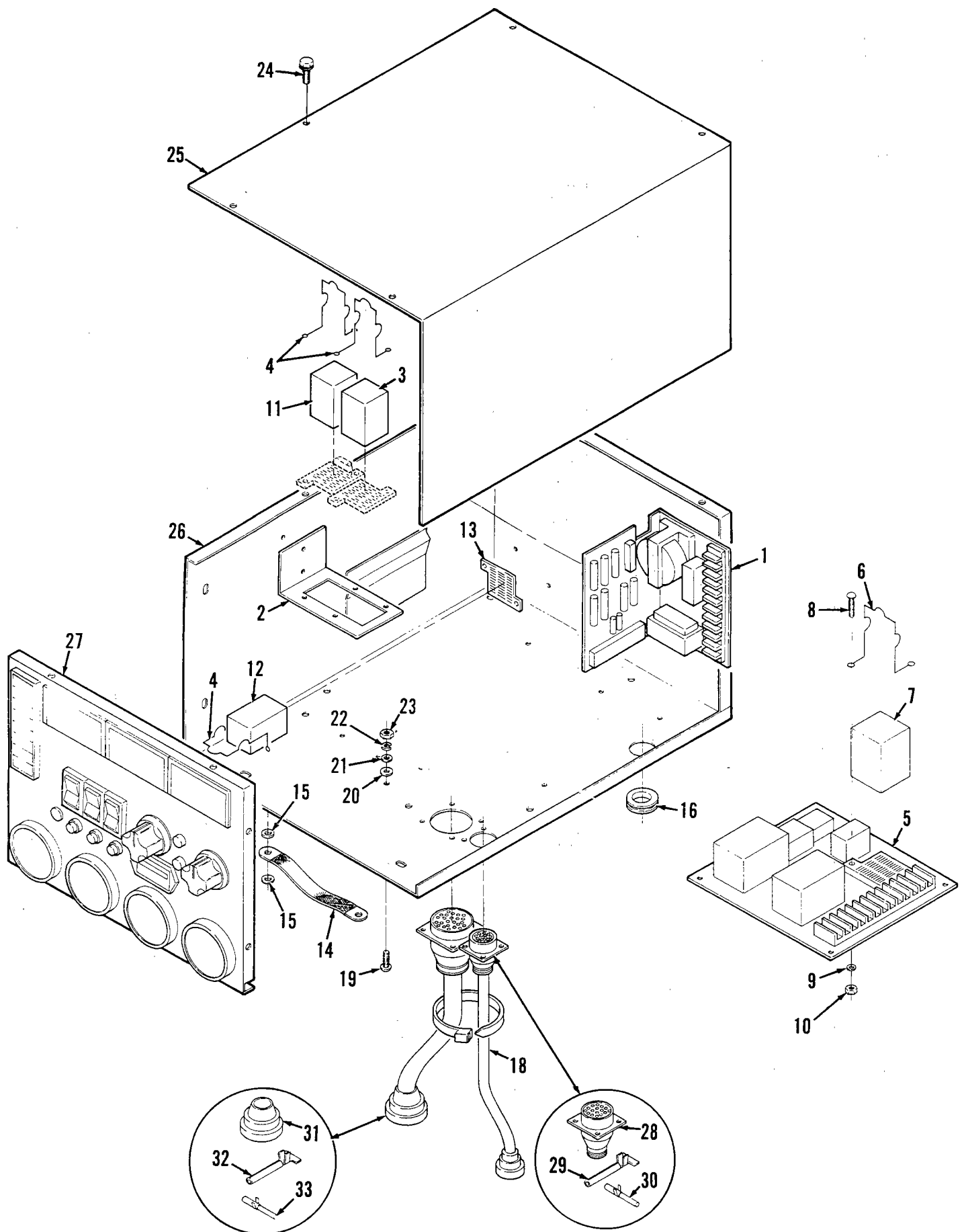
Output Box



Output Box

REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	301-9037	2	Bracket, Support - Output Box - Used on some early models	18	508-0051	1	Grommet, Rubber - 2" Hole (Spec B)
2			Box, Output	19	338-1710	1	Harness, Wiring - Engine to Control (Includes Grommet, Plug and Sockets)
	301-8113	1	Spec A	20	508-0258	1	Grommet, Rubber - 1-1/2" Hole
	301-8978	1	Spec B	21	323-1134	1	Plug, Circular (16 Pin) (P1)
3	821-2045	4	Screw, Self-locking - Hex Washer Head (M8 x 16 MM)	22	323-1192	4	Socket, Female 14-12 Gauge Wire
4	301-8112	1	Grille		323-1195	10	18-14 Gauge Wire
5	301-9038	1	Bracket, Output Box	23			Plug, Plastic - 3/8" Hole
6			Cover		517-0169	4	Spec A
	301-8114	1	Without Circuit Breaker Opening		517-0169	12	Spec B
			With Circuit Breaker Opening	24	332-0941	3	Tie, Cable
	301-8896	1	All Except Sets With 250 Amp, 240 Volt Circuit Breaker	25	800-2035	1	Screw, Cap - Hex Head (M6 x 25 MM) Grounding Stud
			Sets With 250 Amp, 240 Volt Circuit Breaker	26	856-0006	1	Washer, Lock - EIT (1/4")
	301-9307	1	Used With Westinghouse Circuit Breaker	27	850-2006	2	Washer, Flat (M6)
	301-9738	1	Used With General Electric Circuit Breaker	28	860-2007	2	Nut, Hex (M6)
7			Bracket, Mounting - Circuit Breaker	29	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2") Spec A
	301-7572	1	All Except Sets With 250 Amp, 240 Volt Circuit Breaker	34	508-0055	1	Grommet, Rubber - 1-3/4" Hole
			Sets With 250 Amp, 240 Volt Circuit Breaker	36			Transformer, Current (CT21, 22, 23)
	301-9305	1	Used With Westinghouse Circuit Breaker		302-0078	3	Voltage Code 9XR (Ratio 100/5, 1VA)
	301-9736	1	Used With General Electric Circuit Breaker		302-0107	3	Voltage Code 15R, 515R 63.0 DL6TB (Ratio 300/5, 1VA)
8	508-0257	1	Grommet, Plastic - 3-1/2" Hole		302-0607	3	70.0 DL6TB (Ratio 400/5, 10VA)
9	338-1647	1	Harness, Wiring - Generator to Control (Includes Plug and Pins)	37	870-0257	8	Nut, Self-locking - Hex Washer Head (5/16-18) Spec B
10	332-1356	3	Clamp, Insulated - DC Wiring Harness	38	301-8955	8	Bracket - Spec B
11			Breaker, Circuit (CB4 or CB5)	39	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2") Spec B
			Voltage Code 15R	40	402-0527	4	Isolator, Vibration - Spec B
	320-1313	1	125 Amp, 480 Volt	41	226-3423	3	Lead, Generator Output Extension (Quantity may vary)
	320-0349	1	225 Amp, 240 Volt	42	800-0003	2	Screw, Cap - Hex Head (1/4-20 x 1/2")
	320-0422	1	250 Amp, 240 Volt	43	850-0040	2	Washer, Lock - Spring (1/4")
	320-1313	1	Voltage Code 515R - 125 Amp, 480 Volt	44	812-0094	4	Screw, Machine - Round Head (#8-32 x 3-5/8")
12	402-0070	4	Dampener, Vibration - Spec A	45	850-0025	4	Washer, Lock - Spring (#8)
13	517-0190	1	Plug, Plastic - 3-1/2" Hole	46	860-0008	4	Nut, Hex (#8-32)
14			Bracket - Upper	47	812-0063	6	Screw, Machine - Round Head (#6-32 x 1/2")
	301-8110	1	Spec A	48	821-2045	3	Screw, Self-locking - Hex Washer Head (M8 x 16 MM)
	301-8951	1	Spec B	49	800-2054	2	Screw, Cap - Hex Head (M8 x 14 MM)
15			Bracket - Lower	50	850-2008	2	Washer, Lock - Spring (M8)
	301-8109	1	Spec A	51	526-2101	2	Washer, Flat (M8)
	301-8952	1	Spec B	52	323-1136	1	Plug, Circular (14 Pin) (P2)
16	508-1010	1	Channel, Rubber - Used on some early models	53	323-1228	11	Pin, Male
17	821-2032	14	Screw, Self-locking - Hex Washer Head (M6 x 12 MM)				

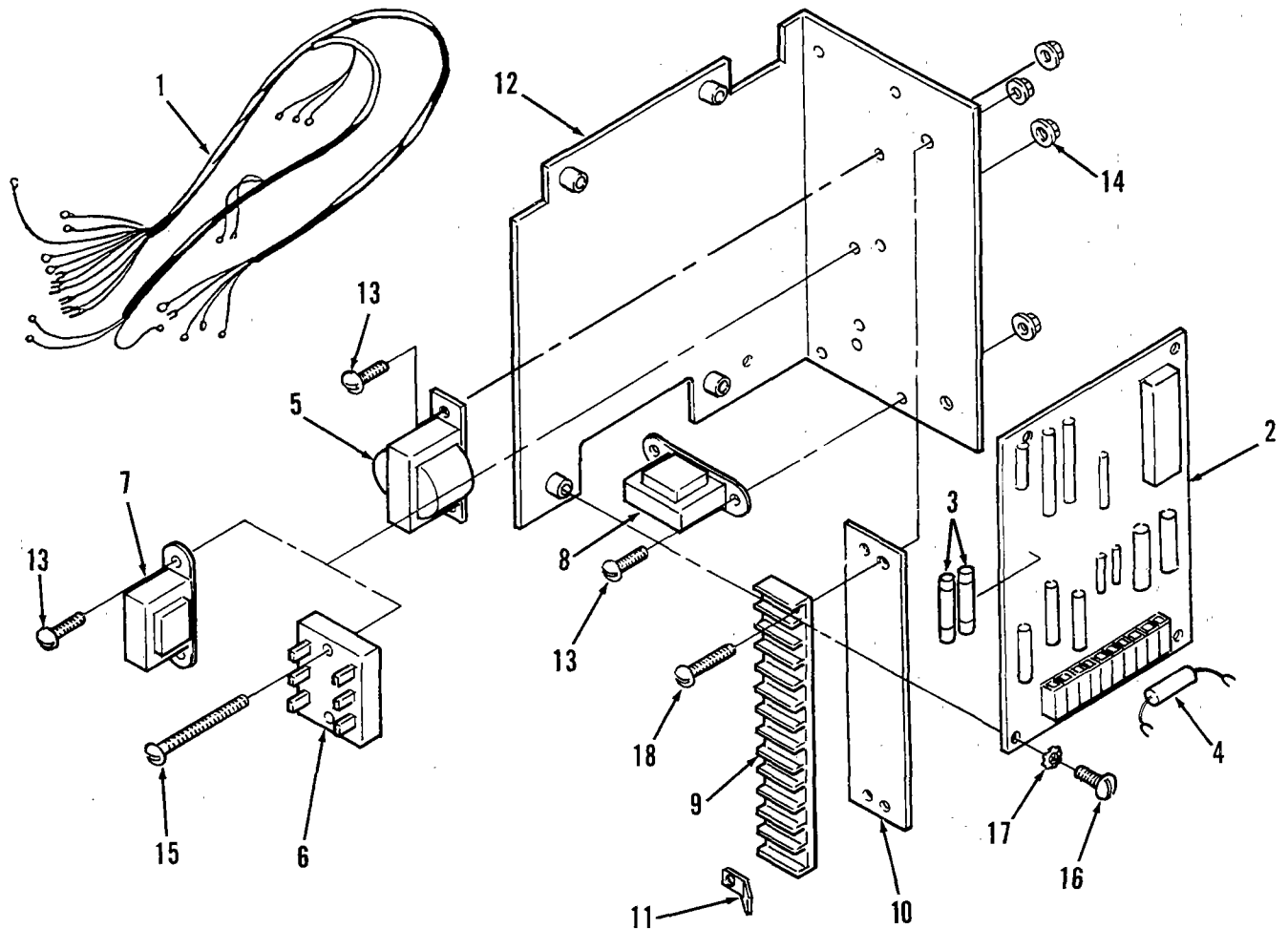
Control



Control

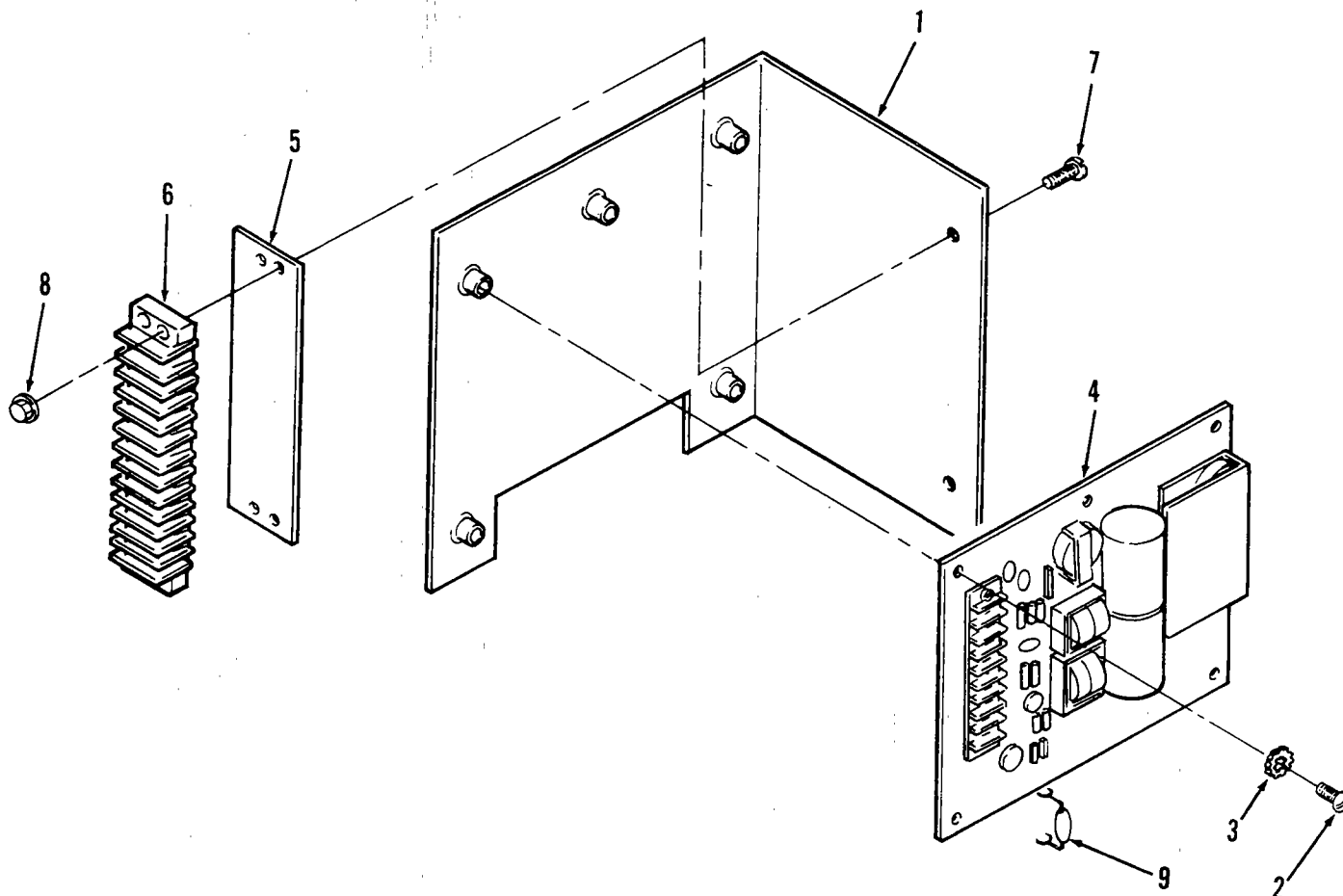
REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1			Regulator Assembly, Voltage (See Separate Page for Components)	18	338-1427	1	Harness, Wiring - Remote Control (30')
			Standard (VRA21)	19	815-0105	1	Screw, Machine - Round Head (Brass) (#10-32 x 1")
	305-0693-01	1	Fixed Resistor				Grounding Stud
	305-0693-02	1	External Adjust	20	526-0063	2	Washer, Flat - Brass (#10)
			Switching Regulator (VRA21)	21	856-0003	2	Washer, Lock - EIT (#10)
	305-0695-01	1	Fixed Resistor	22	851-0001	1	Washer, Lock - Spring (Brass) (#10)
	305-0695-02	1	External Adjust	23	871-0010	2	Nut, Hex - Brass (#10-32)
	305-0737	1	Standard (VRAS-2)	24	821-0005	5	Screw, Self-Locking - Hex Washer Head (#10-32 x 1/2")
2			Bracket, Mounting - Relay	25	301-5150	1	Cover, Control
	301-3244	1	One Socket Hole	26	301-6230	1	Box, Control
	301-7334	1	Two Socket Holes	27	-	1	Panel, Control (See Separate Page for Components)
3	307-1061	1	Relay - Start (K11)	28			Receptacle - Square Flange
4	307-1157	3	Spring, Holddown - Relay		323-1137	1	14 Pin (J2)
5			Monitor Assembly, Engine (Includes Replaceable Relay and Spring) (A11)		323-1135	1	16 Pin (J1)
	300-2510	1	Two Light Monitoring System (Standard)	29	323-1229	11	Socket, Female - Used With 14 Pin Receptacle
	300-2453-04	1	Nine Light Monitoring System	30			Pin, Male - Used With 16 Pin Receptacle
6	307-1157	1	Spring, Holddown - Relay		323-1193	4	16-12 Gauge Wire
7	307-1687	1	Relay (A11K1)		323-1194	12	18-14 Gauge Wire
8	812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")	31			Plug - Circular
9	854-0006	2	Washer, Lock - IT (#6)		323-1136	1	14 Pin (P2)
10	860-0006	2	Nut, Hex (#6-32)		323-1134	1	16 Pin (P1)
11	307-1061	1	Relay - Voltage Selector (K21)	32			Socket, Female - Used With 16 Pin Plug
12	307-1058	1	Relay - Run (K12)		323-1192	4	14-12 Gauge Wire
13	323-0804	1	Socket, Relay (K12)		323-1195	12	18-14 Gauge Wire
14	337-0049	1	Strap, Ground	33	323-1194	11	Pin, Male - Used With 14 Pin Plug
15	856-0008	2	Washer, Lock - EIT (5/16")				
16	508-0144	1	Grommet, Rubber (1" Hole)				

Voltage Regulator Assembly (VRA21)



REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
			Regulator Assembly, Voltage - Complete Standard	7	315-0343	1	Reactor - Used on Switching Voltage Regulator Assemblies (VRA21L22)
	305-0693-01	1	Fixed Resistor	8	315-0343	1	Reactor (VRA21L21)
	305-0693-02	1	External Adjust	9	332-0607	1	Block, Terminal (VRA21TB2)
			Switching Regulator	10	332-2373	1	Strip, Marker
	305-0695-01	1	Fixed Resistor	11	332-2387	4	Terminal, Tab - Used on Standard Voltage Regulator Assemblies
	305-0695-02	1	External Adjust				
1			Harness, Wiring	12	301-5736	1	Panel, Mounting
	338-1443	1	Standard Regulator	13			Screw, Machine - Round Head (#6-32 x 3/8")
	338-1670	1	Switching Regulator		812-0061	4	Standard Voltage Regulator Assemblies
2			Board, Voltage Regulator (VR21)		812-0061	6	Switching Voltage Regulator Assemblies
	332-2045	1	Standard Regulator (Includes Fuses)	14	870-0183	8	Nut, Self-Locking - Hex Head With ET Lockwasher (#6-32)
	300-2409	1	Switching Regulator	15	812-0070	2	Screw, Machine - Round Head (#6-32 x 1-1/4") Used on Standard Voltage Regulator Assemblies
3	321-0204	2	Fuse (1/4 Amp) Used With Standard Voltage Regulator Board (VR21F2,F3)	16	812-0059	4	Screw, Machine - Round Head (#6-32 x 1/4")
4	350-1190	1	Resistor - Fixed (1740 Ohms, 1/2 Watt) Used on Voltage Regulator Assemblies Without External Adjust (VRA21R21)	17	853-0003	4	Washer, Lock - ET (#6)
5	315-0431	1	Transformer (VRA21T21)	18	812-0065	2	Screw, Machine - Round Head (#6-32 x 5/8")
6	305-0524	1	Bridge, Rectifier - Used on Standard Voltage Regulator Assemblies (VRA21CR21)				

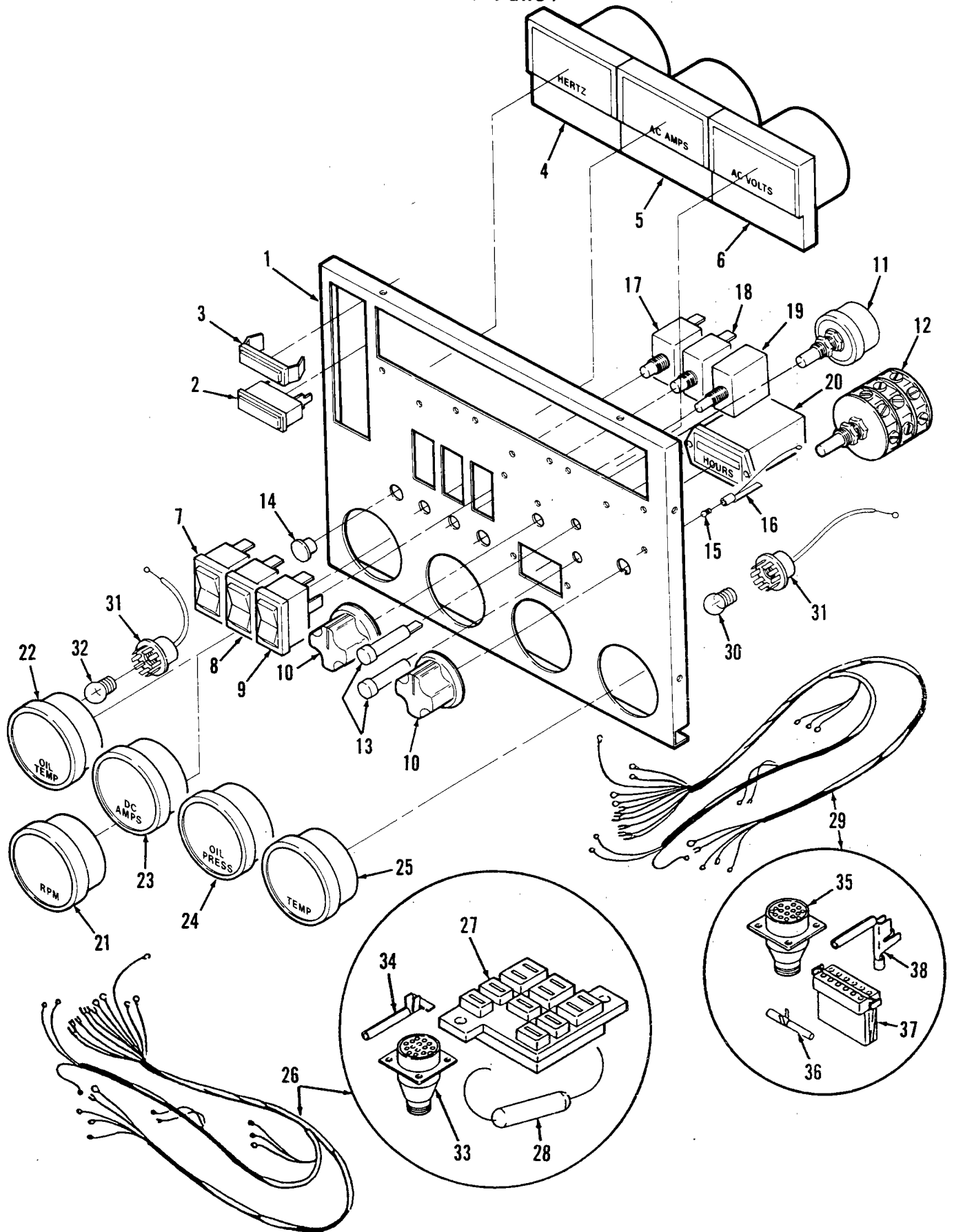
Voltage Regulator Assembly (VRAS-2)



REF NO.	PART NO.	QTY USED	PART DESCRIPTION
	305-0737	1	Regulator Assembly, Voltage - Complete
1	301-9334	1	Panel, Mounting
2	812-0059	5	Screw, Machine - Round Head (#6-32 x 1/4")
3	853-0003	5	Washer, Lock - ET (#6)
4	300-2880	1	Board, Voltage Regulator (VR21)
5	332-2373	1	Strip, Marker

REF NO.	PART NO.	QTY USED	PART DESCRIPTION
6	332-0607	1	Block, Terminal (VRAS-2TB2)
7	812-0065	2	Screw, Machine - Round Head (#6-32 x 5/8")
8	870-0183	2	Nut, Self-Locking - Hex Head With ET Lockwasher (#6-32)
9	350-0394	1	Resistor - Fixed (2000 Ohms, 1/2 Watt) Used on Voltage Regulator Assemblies Without External Adjust (VRAS-2R21)

Control Panel



Control Panel

REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1			Panel, Control	19			Breaker, Circuit - Field
	301-7348-01	1	Panels Without AC Meters				Used With VRA21 Voltage
	301-7348-02	1	Panels With Three Round Gauge Holes	320-1138	1		Regulator Assembly
				320-0530	1		3 Amp (Dual - CB3,CB4)
				320-1121	1		5 Amp (CB3)
	301-7349-01	1	Panels With AC Meters				Used With VRAS-2 Voltage
	301-7349-02	1	Panels With Three Round Gauge Holes				Regulator Assembly - 3 Amp (CB3)
				20	302-0885	1	Meter, Time Totalizing (M4)
				21	302-1715	1	Tachometer (Includes Socket and Lamp (M5))
2			Light, Indicator (14VDC)	22	193-0330	1	Gauge, Oil Temperature (M5)
			Controls With Two Light	23	302-1402	1	Ammeter - DC (M1)
	322-0238	1	Monitoring System	24	193-0352	1	Gauge, Oil Pressure (M2)
	322-0128	1	RUN - Green (DS1)	25	193-0351	1	Gauge, Water Temperature (M3)
			FAULT - Red (DS2)	26			Harness, Wiring - AC
			Controls With Nine Light				(Includes Socket for K11
			Monitoring System				Start Relay, Receptacle and
	322-0238	1	RUN - Green (DS1)				Sockets)
	322-0110	1	LO ENG TEMP - Red (DS2)	338-1642-03	1		Controls Without AC Meters
	322-0109	1	HI ENG TEMP - Red (DS3)				Controls With AC Meters
	322-0108	1	LO OIL PRES - Red (DS4)	338-1642-01	1		All Except Voltage Code
	322-0111	1	OVERSPEED - Red (DS5)				9XR (Also Includes
	322-0107	1	OVER CRANK - Red (DS6)				Resistor and Socket
	322-0240	1	PRE HI ENG TEMP - Amber (DS7)				for K21 Voltage
	322-0241	1	PRE LO OIL PRESS - Amber (DS8)	338-1642-04	1		Selector Relay)
	322-0283	1	SWITCH OFF - Red (DS9)	27	323-0765	2	Voltage Code 9XR
3	322-0141	7	Lens, Indicator Light (No Legend or Lamp) Controls With Two Light Monitoring System	28	350-0556	1	Socket, Relay (For K11,K21 Relays)
4			Meter, Frequency - AC (M21)	29			Resistor, Fixed - 47K Ohm,
	302-1273	1	50 Hertz				1/2 Watt (K21R22)
	302-1153	1	60 Hertz				Harness, Wiring - DC
5			Ammeter - AC (M23)				(Includes Receptacle, Pins,
	302-1620	1	Voltage Code 9XR	338-1643-01	1		Plug and Sockets, where
			Voltage Code 15R, 515R	338-1644	1		required.)
	302-1684	1	63.0 DL6TB	338-1646	1		Meters
	302-1685	1	70.0 DL6TB				Switches
6			Voltmeter - AC (M22)	338-1645	1		Indicator Lights
	302-1148	1	All Except Voltage Code 9XR				Controls With Two Light
	302-1300	1	Voltage Code 9XR	30	322-0308	3	Monitoring System
7			Switch, Push (Remote, Stop, Start) (S10)	31	322-0210	4	Controls With Nine Light
	308-0531	1	Controls With Two Light Monitoring System	32	322-0004	1	Monitoring System
			Controls With Nine Light Monitoring System	33	323-1137	1	Lamp, Pilot (DS10,DS11,DS12)
	308-0620	1	Standard	34			Socket, Lamp
	308-0624	1	Pennsylvania State Approved				Lamp, Pilot (DS13)
8	308-0533	1	Switch, Push - Pre Heat (S11)				Receptacle - Square Flange
9	308-0532	1	Switch, Push - Lamp Test (S12)	35	323-1135	1	(14 Pin) (P2)
10	303-0032	2	Knob				Socket, Female
11			Potentiometer - 25 Watt (R23)				Used With 338-1642-01
	303-0170	1	Used With VRA21 Voltage Regulator Assembly With External Adjust	36			Wiring Harness
	303-0261	1	Used With VRAS-2 Voltage Regulator Assembly With External Adjust		323-1193	3	Used With 338-1642-03
12	308-0284	1	Switch, Rotary - Voltmeter/Ammeter (S21)		323-1194	10	Wiring Harness
13	322-0211	2	Light, Pilot (DS21,DS22)	37	323-0984	3	Used With 338-1642-04
14	517-0132	1	Plug, Hole				Wiring Harness
15	322-0203	2	Lamp (DS14,DS15)	38			Receptacle - Square Flange
16	322-0213	2	Lampholder		323-0488	8	(16 Pin) (P1) Used With
17	320-1110	1	Breaker, Circuit - Remote - 7 Amp (CB1)		323-0488	12	338-1643-01 Wiring Harness
18	320-1110	1	Breaker, Circuit - Control - 7 Amp (CB2)		323-0488	10	Pin, Male - Used With
							323-1137 Receptacle
							16-12 Gauge Wire
							18-14 Gauge Wire
							Plug, Connector (12 Pin)
							(J1, J2, J3) Used With
							338-1643-01, 338-1644 and
							338-1645 Wiring Harnesses
							Socket, Male (Side Feed)
							Used With 338-1643-01
							Wiring Harness
							Used With 338-1644
							Wiring Harness
							Used with 338-1645
							Wiring Harness

Paint and Thread Sealant

REF NO.	PART NO.	QTY USED	PART DESCRIPTION
	525-0305	-	Paint, Green - Enamel (13 oz. Pressurized Spray Can)
	518-0452	-	Sealant, Thread (50 cc Bottle)